

Friendship Junior High School
Sixth Grade Advanced Math Packet
(TDP Pull-Out Program)

*Introduction
To
Algebra*

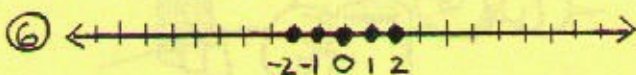
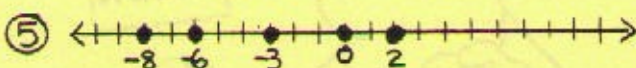
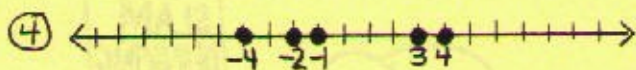
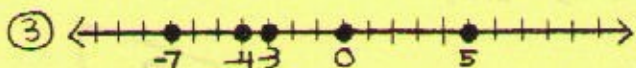
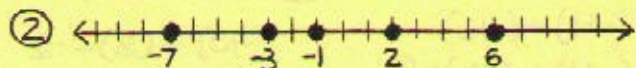
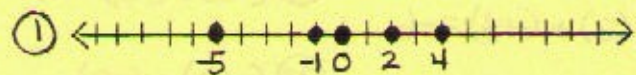


Algebra Units 1-5

Working With Integers
Order of Operations
Evaluating Expressions
Solving Equations
Problem Solving

Working With Integers

1. UNDERSTANDING INTEGERS



- | | | |
|-------|-------|-------|
| ⑦ no | ⑪ no | ⑮ no |
| ⑧ no | ⑫ yes | ⑯ yes |
| ⑨ yes | ⑬ no | ⑰ yes |
| ⑩ yes | ⑭ yes | ⑱ no |

...THANK GOODNESS
THE PHYSICAL FITNESS CRAZE
NEVER GOT TO ME...



- | | |
|-------------|------------|
| ⑲ $-2 > -5$ | ⑳ $4 < 7$ |
| ㉑ $3 > -2$ | ㉒ $0 > -1$ |

- | | |
|-------------|-------------|
| ⑳ $-6 < -4$ | ㉗ $-7 < -4$ |
| ㉘ $-8 > -9$ | ㉙ $3 < 9$ |
| ㉚ $-3 < 3$ | ㉛ $-4 < -2$ |
| ㉜ $-5 = -5$ | ㉝ $0 > -1$ |

2. ADDING INTEGERS

- | | |
|-----------------------|-----------------------|
| ① $(-6) + (-2) = -8$ | ⑪ $(8) + (9) = 17$ |
| ② $(-3) + (7) = 4$ | ⑫ $(-5) + (11) = 6$ |
| ③ $(-8) + (5) = -3$ | ⑬ $(7) + (-10) = -3$ |
| ④ $(4) + (9) = 13$ | ⑭ $(-3) + (-8) = -11$ |
| ⑤ $(-7) + (7) = 0$ | ⑮ $(-5) + (9) = 4$ |
| ⑥ $(6) + (-10) = -4$ | ⑯ $(8) + (-11) = -3$ |
| ⑦ $(-3) + (-9) = -12$ | ⑰ $(-6) + (-4) = -10$ |
| ⑧ $(6) + (-4) = 2$ | ⑱ $(-2) + (7) = 5$ |
| ⑨ $(0) + (-3) = -3$ | ⑲ $(6) + (8) = 14$ |
| ⑩ $(-7) + (-5) = -12$ | ㉑ $(-3) + (-2) = -5$ |

Be sure to show all steps:

- ⑳ $(-7) + (6) + (-3) + (-6) + (2)$
 $(-16) + (8) = -8$
- ㉑ $(7) + (-14) + (8) + (9) + (-3)$
 $(-7) + (24) = 17$
- ㉒ $(-8) + (-6) + (2) + (7) + (9)$
 $(-16) + (16) = 0$

UNIT 1: ANSWER KEY

Working With Integers

$$\textcircled{24} \quad (-3) + (-7) + (-8) + (4) + (6) \\ (-11) + (11) = 0$$

$$\textcircled{25} \quad (-6) + (-2) + (3) + (4) + (-1) \\ (-9) + (7) = -2$$

$$\textcircled{26} \quad (-1) + (-3) + (-2) + (5) + (-8) \\ (-13) + (12) = -1$$

$$\textcircled{27} \quad (-3) + (5) + (-8) + (7) + (-2) \\ (-10) + (12) = 2$$

$$\textcircled{28} \quad (-10) + (-11) + (9) + (8) + (4) \\ (-21) + (21) = 0$$

$$\textcircled{15} \quad (-7) - (-12) \\ (-7) + (12) = 5$$

$$\textcircled{16} \quad (8) + (-14) = -6$$

$$\textcircled{17} \quad (-4) - (-12) \\ (-4) + (12) = 8$$

$$\textcircled{18} \quad (3) + (-9) = -6$$

$$\textcircled{19} \quad (-6) + (-5) = -11$$

$$\textcircled{20} \quad (-10) - (-8) \\ (-10) + (8) = -2$$



3. SUBTRACTING INTEGERS

$$\textcircled{1} \quad (6) - (-4) \\ (6) + (4) = 10$$

$$\textcircled{2} \quad (-3) - (-7) \\ (-3) + (-7) = -10$$

$$\textcircled{3} \quad (-8) + (-9) = -17$$

$$\textcircled{4} \quad (-6) + (-5) = -11$$

$$\textcircled{5} \quad (-8) + (4) = -4$$

$$\textcircled{6} \quad (-7) - (-9) \\ (-7) + (9) = 2$$

$$\textcircled{7} \quad (6) + (-4) = 2$$

$$\textcircled{8} \quad (9) + (7) = 16$$

$$\textcircled{9} \quad (10) - (-4) \\ (10) + (4) = 14$$

$$\textcircled{10} \quad (7) - (-6) \\ (7) + (-6) = 1$$

$$\textcircled{11} \quad (-7) + (-8) = -15$$

$$\textcircled{12} \quad (-9) - (-6) \\ (-9) + (6) = -3$$

$$\textcircled{13} \quad (6) + (-6) = 0$$

$$\textcircled{14} \quad (-8) - (-9) \\ (-8) + (-9) = -17$$

$$\textcircled{21} \quad (-3) + (-6) - (-8) - (-5) + (4) \\ (-3) + (-6) + (8) + (5) + (4) \\ (-9) + (17) = 8$$

$$\textcircled{22} \quad (5) - (-4) - (2) + (-6) - (3) \\ (5) + (4) + (-2) + (-6) + (-3) \\ (-11) + (9) = -2$$

$$\textcircled{23} \quad (-7) - (-3) + (-2) - (5) - (-1) \\ (-7) + (3) + (-2) + (-5) + (1) \\ (-14) + (4) = -10$$

$$\textcircled{24} \quad (-3) + (-2) - (-5) - (-6) - (4) \\ (-3) + (-2) + (5) + (6) + (-4) \\ (-9) + (11) = 2$$

$$\textcircled{25} \quad (-7) - (5) - (-6) + (4) \\ (-7) + (-5) + (6) + (4) \\ (-12) + (10) = -2$$

UNIT 1: ANSWER KEY

Working With Integers

$$\begin{aligned} \textcircled{26} \quad & (6) - (6) + (-6) - (-6) \\ & (\cancel{6}) + (\cancel{-6}) + (\cancel{-6}) + (\cancel{6}) \\ & (-12) + (12) = 0 \end{aligned}$$

$$\begin{aligned} \textcircled{27} \quad & (-10) + (-8) - (-7) - (12) + (-5) \\ & (\cancel{-10}) + (\cancel{-8}) + (\cancel{7}) + (\cancel{-12}) + (\cancel{-5}) \\ & (-35) + (7) = -28 \end{aligned}$$

$$\begin{aligned} \textcircled{28} \quad & (-6) - (-4) - (14) + (20) - (-12) \\ & (\cancel{-6}) + (\cancel{4}) + (\cancel{-14}) + (\cancel{20}) + (\cancel{12}) \\ & (-20) + (36) = 16 \end{aligned}$$

$$\begin{aligned} \textcircled{29} \quad & (-7) + (-2) - (-9) - (6) + (3) \\ & (\cancel{-7}) + (\cancel{-2}) + (\cancel{9}) + (\cancel{-6}) + (\cancel{3}) \\ & (-15) + (12) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{30} \quad & (-8) - (-8) + (-8) - (8) + (-8) \\ & (\cancel{-8}) + (\cancel{8}) + (\cancel{-8}) + (\cancel{-8}) + (\cancel{-8}) \\ & (-32) + (8) = -24 \end{aligned}$$

$$\textcircled{17} \quad (-10) \times (-8) = 80$$

$$\textcircled{18} \quad (25) \div (-5) = -5$$

$$\textcircled{19} \quad (55) \div (11) = 5$$

$$\textcircled{20} \quad (14) \times (-3) = -42$$

$$\textcircled{21} \quad (-3) + (-8) = -11$$

$$\begin{aligned} \textcircled{22} \quad & (-8) - (-4) \\ & (-8) + (4) = -4 \end{aligned}$$

$$\textcircled{23} \quad (-7) \times (-2) = 14$$

$$\begin{aligned} \textcircled{24} \quad & (-3) - (-4) \\ & (-3) + (-4) = -7 \end{aligned}$$

$$\textcircled{25} \quad (12) + (-6) = 6$$

$$\textcircled{26} \quad (-8) \div (2) = -4$$

$$\begin{aligned} \textcircled{27} \quad & (-2) - (-8) \\ & (-2) + (8) = 6 \end{aligned}$$

$$\textcircled{28} \quad (-10) \times (3) = -30$$

$$\textcircled{29} \quad (-10) + (13) = 3$$

$$\begin{aligned} \textcircled{30} \quad & (8) - (-6) \\ & (8) + (6) = 14 \end{aligned}$$

4. MULTIPLYING & DIVIDING

$$\textcircled{1} \quad (6) \times (-5) = -30$$

$$\textcircled{2} \quad (-3) \times (-8) = 24$$

$$\textcircled{3} \quad (7) \div (-1) = -7$$

$$\textcircled{4} \quad (9) \div (3) = 3$$

$$\textcircled{5} \quad (-2) \times (8) = -16$$

$$\textcircled{6} \quad (-6) \times (-6) = 36$$

$$\textcircled{7} \quad (-20) \div (5) = -4$$

$$\textcircled{8} \quad (8) \div (-8) = -1$$

$$\textcircled{9} \quad (-3) \times (-7) = 21$$

$$\textcircled{10} \quad (-12) \div (4) = -3$$

$$\textcircled{11} \quad (-5) \div (3) = -5$$

$$\textcircled{12} \quad (12) \times (-5) = -60$$

$$\textcircled{13} \quad (-7) \times (-7) = 49$$

$$\textcircled{14} \quad (8) \div (1) = 8$$

$$\textcircled{15} \quad (-6) \div (-3) = 2$$

$$\textcircled{16} \quad (-4) \times (12) = -48$$

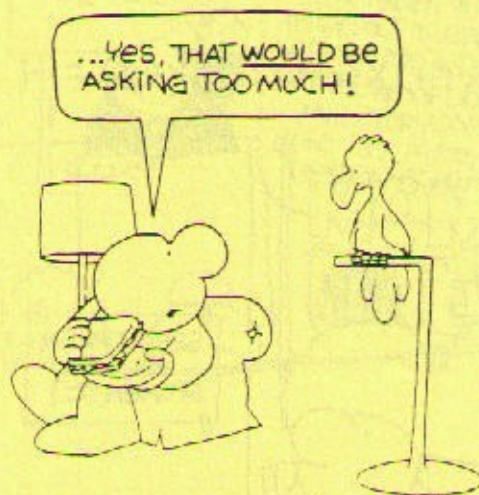
$$\textcircled{31} \quad (-2) \times (-1) \times (3) \times (2) = 12$$

$$\textcircled{32} \quad (-4) \times (2) \times (-1) \times (-1) = -8$$

$$\textcircled{33} \quad (-5) \times (1) \times (3) \times (2) = -30$$

$$\textcircled{34} \quad (-4) \times (-3) \times (-2) \times (-1) = 24$$

$$\begin{aligned} \textcircled{35} \quad & (6) + (-2) - (-3) + (4) - (-1) \\ & (\cancel{6}) + (\cancel{-2}) + (\cancel{3}) + (\cancel{4}) + (\cancel{1}) \\ & (-2) + (14) = 12 \end{aligned}$$



UNIT 1: ANSWER KEY

Working With Integers

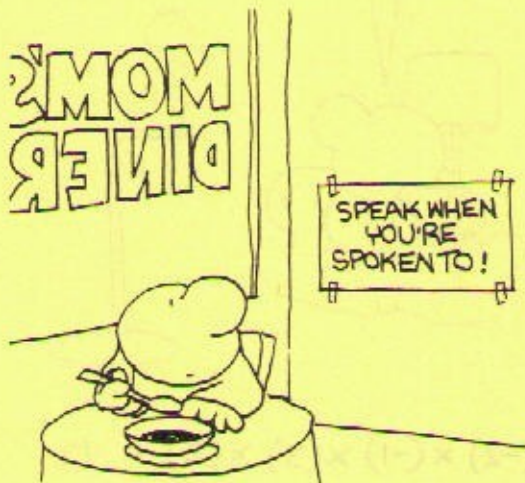
36 $(10) - (-3) - (4) + (-7) - (-2)$
 $(10) + (3) + (-4) + (-7) + (2)$
 $(-11) + (15) = 4$

37 $(-3) \times (-2) \times (2) \times (-2) \times (-1) = 24$

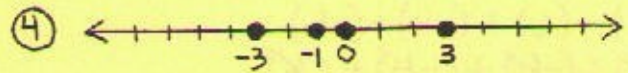
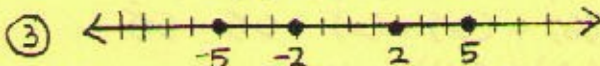
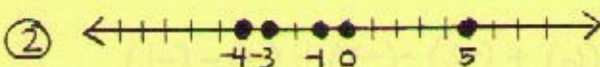
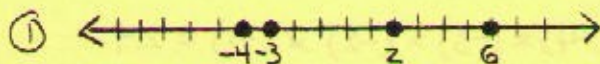
38 $(6) - (-1) + (3) + (-5) - (-2)$
 $(6) + (1) + (3) + (-5) + (2)$
 $(-5) + (12) = 7$

39 $(-12) + (-8) - (-15) + (6) - (-10)$
 $(-12) + (-8) + (15) + (6) + (10)$
 $(-20) + (31) = 11$

40 $(-1) \times (-1) \times (-1) \times (-1) \times (-1) = -1$



REVIEW & PRACTICE



5 yes

6 no

7 no

8 yes

9 yes

10 no

11 $-2 < 0$

12 $-4 > -7$

13 $7 > -7$

14 $-8 < -6$

15 $-2 > -10$

16 $-3 = -3$

17 $(-3) + (-7) = -10$

18 $(-8) \times (-4) = 32$

19 $(9) \div (-3) = -3$

20 $(-12) - (-6)$
 $(-12) + (6) = -6$

21 $(-8) \div (-8) = 1$

22 $(6) - (7)$
 $(6) + (-7) = -1$

23 $(-4) - (-8)$
 $(-4) + (8) = 4$

24 $(-3) \times (4) = -12$

25 $(-2) + (-6) = -8$

26 $(-8) - (-4)$
 $(-8) + (4) = -4$

27 $(5) + (-7) = -2$

28 $(-10) \div (-1) = 10$

29 $(8) - (-6)$
 $(8) + (6) = 14$

30 $(-2) \times (-3) = 36$

31 $(-2) - (-9)$
 $(-2) + (9) = 7$

32 $(-5) + (13) = 8$

33 $(-8) \times (5) = -40$

34 $(6) - (-14)$
 $(6) + (14) = 20$

35 $(-12) + (-3) = -15$

36 $(-4) \times (-2) = 8$

37 $(-8) - (-10)$
 $(-8) + (10) = 2$

38 $(-4) - (-3)$
 $(-4) + (3) = -1$

Working With Integers

39) $(-20) \div (4) = -5$

40) $(13) + (-10) = 3$

41) $(-5) - (-8)$
 $(-5) + (8) = 3$

42) $(-16) \div (-8) = 2$

43) $(-3) - (-1)$
 $(-3) + (1) = -2$

44) $(-3) + (-2) - (-5) - (-7) - (8)$
 $(-3) + (-2) + (5) + (7) + (-8)$
 $(-13) + (12) = -1$

45) $(-4) - (-2) + (-6) - (7) - (-2)$
 $(-4) + (2) + (-6) + (-7) + (2)$
 $(-17) + (4) = -13$

46) $(-6) + (-2) + (4) - (-2) - (6)$
 $(-6) + (-2) + (4) + (2) + (-6)$
 $(-14) + (6) = -8$

47) $(8) - (-2) + (-5) - (-6) + (-4)$
 $(8) + (2) + (-5) + (6) + (-4)$
 $(-9) + (16) = 7$

48) $(-2) \times (2) \times (-3) \times (1) = 12$

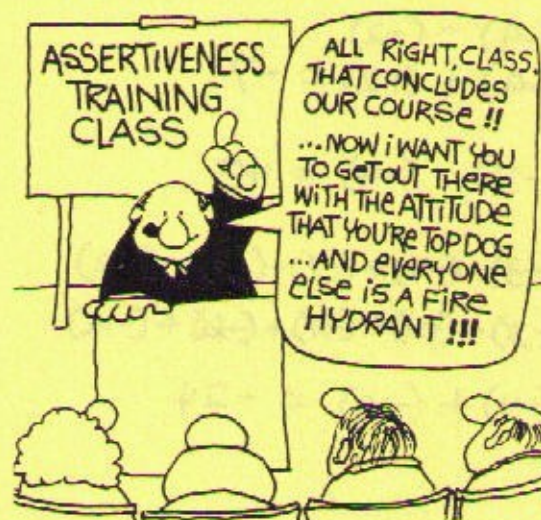
49) $(-3) \times (-1) \times (2) \times (-4) \times (2) = -48$

50) $(8) \times (-1) \times (2) \times (-1) \times (-1) = -16$

51) $(-3) \times (2) \times (-1) \times (4) \times (2) = 48$

52) $(-3) - (-5) + (-7) - (-2) - (6) + (4)$
 $(-3) + (5) + (-7) + (2) + (-6) + (4)$
 $(-16) + (11) = -5$

53) $(-2) - (8) + (-3) - (-5) + (-12)$
 $(-2) + (-8) + (-3) + (5) + (-12)$
 $(-25) + (5) = -20$



UNIT 1: ANSWER KEY

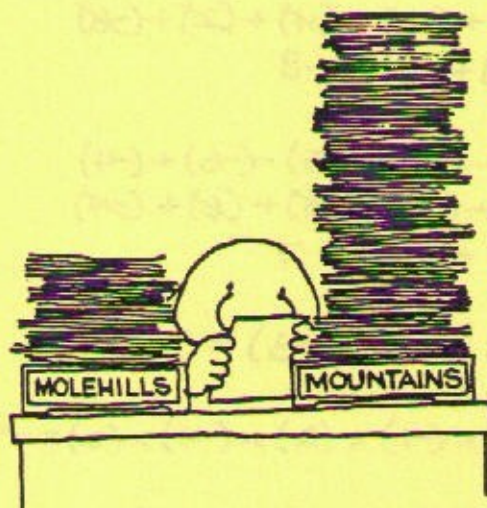
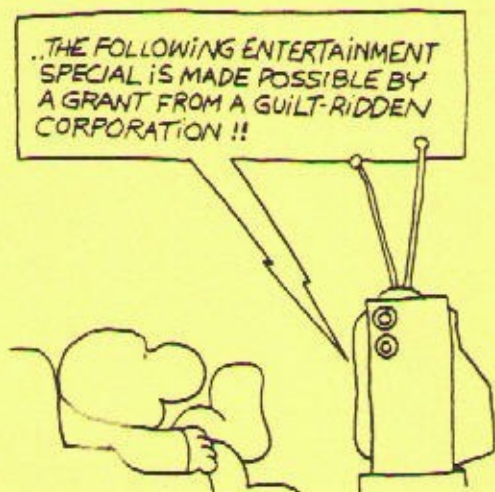
Working With Integers

PRACTICE TEST #1

- ① $-11 \square -13$
- ② $(-8) \div (+4) = -2$
- ③ $(-3) + (-7) = -10$
- ④ $(-9) - (-2)$
 $(-9) + (+2) = -7$
- ⑤ $(-5) \times (-9) = 45$
- ⑥ $(-3) - (-4) + (-7) - (+6) - (+12)$
 $(-3) + (+4) + (-7) + (-6) + (-12)$
 $(+4) + (-28) = -24$

PRACTICE TEST #2

- ① $-9 \square -1$
- ② $(-20) \div (-4) = 5$
- ③ $(-2) + (+7) = 5$
- ④ $(-5) - (+11)$
 $(-5) + (-11) = -16$
- ⑤ $(+4) \times (-12) = -48$
- ⑥ $(-8) + (-4) - (-7) - (+5) - (-9)$
 $(-8) + (-4) + (+7) + (-5) + (+9)$
 $(+16) + (-17) = -1$



UNIT 2: ANSWER KEY

Order Of Operations

1. USING EXPONENTS

- | | |
|-------------------|----------------------|
| ① $7^2 = 49$ | ②③ $5^0 = 1$ |
| ② $4^3 = 64$ | ②④ $12^2 = 144$ |
| ③ $5^2 = 25$ | ②⑤ $3^3 = 27$ |
| ④ $8^0 = 1$ | ②⑥ $13^1 = 13$ |
| ⑤ $5^3 = 125$ | ②⑦ $2^4 = 16$ |
| ⑥ $3^4 = 81$ | ②⑧ $6^2 = 36$ |
| ⑦ $2^5 = 32$ | ②⑨ $1^4 = 1$ |
| ⑧ $1^5 = 1$ | ③⑩ $9^0 = 1$ |
| ⑨ $7^0 = 1$ | ③⑪ $(-2)^1 = -2$ |
| ⑩ $6^3 = 216$ | ③⑫ $(-2)^4 = 16$ |
| ⑪ $3^5 = 243$ | ③⑬ $(-2)^3 = -8$ |
| ⑫ $9^2 = 81$ | ③⑭ $(-3)^3 = -27$ |
| ⑬ $4^0 = 1$ | ③⑮ $(-4)^3 = -64$ |
| ⑭ $10^3 = 1000$ | ③⑯ $(-5)^0 = 1$ |
| ⑮ $2^6 = 64$ | ③⑰ $(-2)^5 = -32$ |
| ⑯ $10^2 = 100$ | ③⑱ $(-1)^6 = 1$ |
| ⑰ $10^4 = 10,000$ | ③⑲ $(-10)^3 = -1000$ |
| ⑱ $2^3 = 8$ | |
| ⑲ $1^7 = 1$ | |
| ⑳ $8^2 = 64$ | |
| ㉑ $4^4 = 256$ | |
| ㉒ $6^4 = 1296$ | |

2. LEARNING THE ORDER

- | | |
|---|---|
| ① $6 - 3 \times 5$
$6 - (15)$
$6 + (-15) = -9$ | ⑧ $-9 + (4+2)(-2)$
$-9 + (6)(-2)$
$-9 + (-12) = -21$ |
| ② $8 + 2 \cdot (-3)$
$8 + (-6) = 2$ | ⑨ $4 - (3)(-2) - 5$
$4 - (-6) - 5$
$4 + (6) + (-5)$
$(-5) + (10) = 5$ |
| ③ $6 + (-8) \div 2$
$6 + (-4) = 2$ | ⑩ $-6 + (-2)(4) - (-1)$
$-6 + (-8) - (-1)$
$-6 + (-8) + (1)$
$(-14) + (1) = -13$ |
| ④ $-2 - (-3)(-2)$
$-2 - (6)$
$-2 + (-6) = -8$ | ⑪ $10 - 5 \cdot 3 - 4$
$10 - 15 - 4$
$10 + (-15) + (-4)$
$(-19) + (10) = -9$ |
| ⑤ $-8 - (7-3)$
$-8 - (4)$
$-8 + (-4) = -12$ | ⑫ $-1 + (3)(-4) - (-2)$
$-1 + (-12) - (-2)$
$-1 + (-12) + (2)$
$(-13) + (2) = -11$ |
| ⑥ $12 - (9-1)$
$12 - (8)$
$12 + (-8) = 4$ | ⑬ $-6 + (-3)(5-2)$
$-6 + (-3)(3)$
$-6 + (-9) = -15$ |
| ⑦ $8 - (6+5)(-1)$
$8 - (11)(-1)$
$8 - (-11)$
$8 + (11) = 19$ | ⑭ $-8 - (-6) \cdot (3+7)$
$-8 - (-6) \cdot (10)$
$-8 - (-60)$
$-8 + (60) = 52$ |



UNIT 2: ANSWER KEY

Order Of Operations

$$\begin{aligned} 15) & (6-3) - (8+5) \\ & (3) - (13) \\ & (3) + (-13) = -10 \end{aligned}$$

$$\begin{aligned} 16) & (3-8) + (6-10) \\ & (-5) + (-4) = -9 \end{aligned}$$

$$\begin{aligned} 17) & (-2)^2 - (3-5) \\ & (-2)^2 - (-2) \\ & (4) - (-2) \\ & (4) + (2) = 6 \end{aligned}$$

$$\begin{aligned} 18) & (-1)^3 + (2-7) \\ & (-1)^3 + (-5) \\ & (-1) + (-5) = -6 \end{aligned}$$

$$\begin{aligned} 19) & (-4)^0 - (-2)(5) \\ & (1) - (-2)(5) \\ & (1) - (-10) \\ & (1) + (10) = 11 \end{aligned}$$

$$\begin{aligned} 20) & (-3)(-3) + (-1)^4 \\ & (-3)(-3) + (1) \\ & (9) + (1) = 10 \end{aligned}$$

$$\begin{aligned} 21) & (-2)(-2)(-2) - (-2)^3 \\ & (-2)(-2)(-2) - (-8) \\ & (-8) - (-8) \\ & (-8) + (8) = 0 \end{aligned}$$

$$\begin{aligned} 22) & (2-5)^2 + (3-4)^3 \\ & (-3)^2 + (-1)^3 \\ & (9) + (-1) = 8 \end{aligned}$$

$$\begin{aligned} 23) & (-2)^2 - (-1)^3 + (-3)^2 \\ & (4) - (-1) + (9) \\ & (4) + (1) + (9) = 14 \end{aligned}$$

$$\begin{aligned} 24) & (-2)(-3) - (-4)(-1)^2 - (-3) \\ & (-2)(-3) - (-4)(1) - (-3) \\ & (6) - (-4) - (-3) \\ & (6) + (4) + (3) = 13 \end{aligned}$$

$$\begin{aligned} 25) & (-2)(5-7) - (-3)^0 \\ & (-2)(-2) - (-3)^0 \\ & (-2)(-2) - (1) \\ & (4) - (1) \\ & (4) + (-1) = 3 \end{aligned}$$

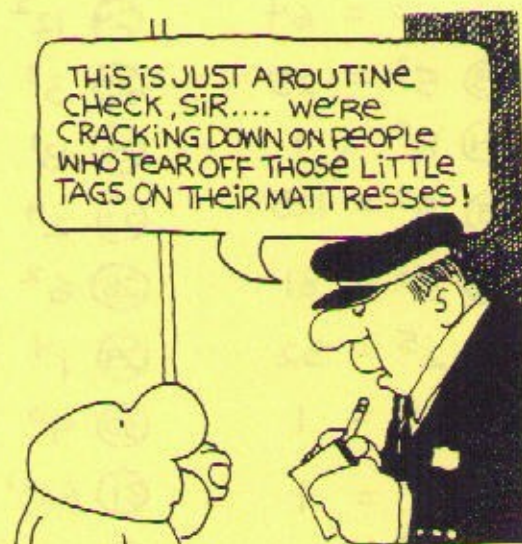
$$\begin{aligned} 26) & (-5)^2 - (-6) \div (-1)^3 - (-3) \\ & (25) - (-6) \div (-1) - (-3) \\ & (25) - (6) - (-3) \\ & (25) + (-6) + (3) \\ & (-6) + (28) = 22 \end{aligned}$$

$$\begin{aligned} 27) & (-2)^0 - (3-7)(-3) \\ & (-2)^0 - (-4)(-3) \\ & (1) - (-4)(-3) \\ & (1) - (12) \\ & (1) + (-12) = -11 \end{aligned}$$

$$\begin{aligned} 28) & (-6)(-1) \div (-2) - (-2)^3 \\ & (-6)(-1) \div (-2) - (-8) \\ & (6) \div (-2) - (-8) \\ & (-3) - (-8) \\ & (-3) + (8) = 5 \end{aligned}$$

$$\begin{aligned} 29) & (-1)(-1)(-1) + (-1)^0 \\ & (-1) + (1) = 0 \end{aligned}$$

$$\begin{aligned} 30) & (-2)^4 - (-2)^3 - (-2)^2 \\ & (16) - (-8) - (4) \\ & (16) + (8) + (-4) \\ & (-4) + (24) = 20 \end{aligned}$$



3. MORE PRACTICE

$$\begin{aligned} 1) & (-3)(-2)(-1) - (-2)^2 \\ & (-3)(-2)(-1) - (4) \\ & (-6) - (4) \\ & (-6) + (-4) = -10 \end{aligned}$$

$$\begin{aligned} 2) & (-1)^2 - (5-9) \div 2 \\ & (-1)^2 - (-4) \div 2 \\ & (1) - (-4) \div 2 \\ & (1) - (-2) \\ & (1) + (2) = 3 \end{aligned}$$

UNIT 2: ANSWER KEY

Order Of Operations

$$\begin{aligned} \textcircled{3} & (-1)^2 - 1^2 \\ & (1) - 1 \\ & (1) + (-1) = 0 \end{aligned}$$

$$\begin{aligned} \textcircled{4} & (-4)^0 - (-3)^2 - (-1)^3 \\ & (1) - (9) - (-1) \\ & (1) + (-9) + (1) \\ & (-9) + (2) = -7 \end{aligned}$$

$$\begin{aligned} \textcircled{5} & (-2)(-5) + (-2)^2 - (-2)^3 \\ & (-2)(-5) + (4) - (-8) \\ & (10) + (4) - (-8) \\ & (10) + (4) + (8) = 22 \end{aligned}$$

$$\begin{aligned} \textcircled{6} & -2(5-8) - (-3)^2 \\ & -2(-3) - (-3)^2 \\ & -2(-3) - (9) \\ & (6) - (9) \\ & (6) + (-9) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{7} & (-3)^2 - 3^2 + (-3)^2 \\ & (9) - 9 + (9) \\ & (9) + (-9) + (9) \\ & (-9) + (18) = 9 \end{aligned}$$

$$\begin{aligned} \textcircled{8} & -3(-2)^2 - (-1)^4 \\ & -3(4) - (1) \\ & (-12) - (1) \\ & (-12) + (-1) = -13 \end{aligned}$$

$$\begin{aligned} \textcircled{9} & (-3)(-5)^0 - 2^2 \\ & (-3)(1) - 4 \\ & (-3) - 4 \\ & (-3) + (-4) = -7 \end{aligned}$$

$$\begin{aligned} \textcircled{10} & -2^4(3-7)^0 - (-2) \\ & -2^4(-4)^0 - (-2) \\ & -16(1) - (-2) \\ & (-16) - (-2) \\ & (-16) + (2) = -14 \end{aligned}$$

$$\begin{aligned} \textcircled{11} & (-1)^2 - (-1)^3 - (-1)^4 \\ & (1) - (-1) - (1) \\ & (1) + (1) + (-1) \\ & (-1) + (2) = 1 \end{aligned}$$

$$\begin{aligned} \textcircled{12} & (-2)^3 - (-3)(-1)(-2)^2 \\ & (-8) - (-3)(-1)(4) \\ & (-8) - (12) \\ & (-8) + (-12) = -20 \end{aligned}$$

$$\begin{aligned} \textcircled{13} & -4^2 - 4 - (-4)^2 \\ & -16 - 4 - (16) \\ & -16 + (-4) + (-16) = -36 \end{aligned}$$

$$\begin{aligned} \textcircled{14} & (-3)^2 - (5-7) \\ & (-3)^2 - (-2) \\ & (9) - (-2) \\ & (9) + (2) = 11 \end{aligned}$$

$$\begin{aligned} \textcircled{15} & -3^2 - 5(-7) \\ & -9 - 5(-7) \\ & -9 - (-35) \\ & -9 + (35) = 26 \end{aligned}$$

$$\begin{aligned} \textcircled{16} & -5^0 - (-5)^0 - (-5) \\ & -1 - (1) - (-5) \\ & -1 + (-1) + (5) \\ & (-2) + (5) = 3 \end{aligned}$$

$$\textcircled{17} -4^2 = -16$$

$$\textcircled{18} (-4)^2 = 16$$

$$\textcircled{19} -3^3 = -27$$

$$\textcircled{20} -3^2 = -9$$

$$\textcircled{21} (-3)^3 = -27$$

$$\textcircled{22} (-3)^2 = 9$$

$$\textcircled{23} -2^0 = -1$$

$$\textcircled{24} (-2)^0 = 1$$

$$\textcircled{25} (-2)^5 = -32$$

$$\textcircled{26} -5^3 = -125$$

$$\textcircled{27} (-5)^3 = -125$$

$$\textcircled{28} (-5)^2 = 25$$

$$\textcircled{29} -5^0 = -1$$

$$\textcircled{30} -1^3 = -1$$

PATIENCE
COMES TO THOSE
WHO WAIT..



UNIT 2: ANSWER KEY

Order Of Operations

REVIEW & PRACTICE

① $3^3 = 27$

⑥ $(-2)^4 = 16$

② $2^5 = 32$

⑦ $-3^2 = -9$

③ $4^2 = 16$

⑧ $-2^2 = -4$

④ $(-10)^2 = 100$

⑨ $-4^0 = -1$

⑤ $(-3)^3 = -27$

⑩ $(-4)^0 = 1$

i DONT
HATE MONDAYS...
i JUST GET ALONG
BETTER WITH
OTHER DAYS OF
THE WEEK...



MONDAY

⑳ $(-3)(-2)(-1) = -6$

㉑ $(6-8)^2 - (-2)^0$
 $(-2)^2 - (-2)^0$
 $(4) - (1)$
 $(4) + (-1) = 3$

㉒ $(-1)^0 - (-1)^2 - (-1)$
 $(1) - (1) - (-1)$
 $(1) + (-1) + (1)$
 $(-1) + (2) = 1$

⑪ $-4 - (-3)(-2)$
 $-4 - (6)$
 $-4 + (-6) = -10$

⑫ $(-1)^3 - (-4+9)$
 $(-1)^3 - (-5)$
 $(-1) - (-5)$
 $(-1) + (5) = 4$

⑬ $(-2)(-2)^2 - (-2)$
 $(-2)(4) - (-2)$
 $(-8) - (-2)$
 $(-8) + (2) = -6$

⑭ $(6-9) - (-2)$
 $(-3) - (-2)$
 $(-3) + (2) = -1$

⑮ $(-2)^2 - (-3)(-2)$
 $(4) - (-3)(-2)$
 $(4) - (6)$
 $(4) + (-6) = -2$

⑯ $(-6) - (-2)^3 \cdot (-1)$
 $(-6) - (-8) \cdot (-1)$
 $(-6) - (8)$
 $(-6) + (-8) = -14$

⑰ $(-3) - 8 \div (-2)$
 $(-3) - (-4)$
 $(-3) + (4) = 1$

⑱ $(-1)^2(-2)^3 - (-2)$
 $(1)(-8) - (-2)$
 $(-8) - (-2)$
 $(-8) + (2) = -6$

㉓ $(-3)(-4)(-5) = -60$

⑲ $(-2)(-4) - (-1)(3)$
 $(8) - (-3)$
 $(8) + (3) = 11$

㉔ $(-2)^2 - (-2)^0(-3)^2 + (5-11)$
 $(-2)^2 - (-2)^0(-3)^2 + (-6)$
 $(4) - (1)(9) + (-6)$
 $(4) - (9) + (-6)$
 $(4) + (-9) + (-6)$
 $(-15) + (4) = -11$

⑳ $8 - 2(-4) - (-6)$
 $8 - (-8) - (-6)$
 $8 + (8) + (6) = 22$

Order Of Operations



$$\begin{aligned} 27) & (4-6)^2 - (-2)^3(-5)^0 \\ & (-2)^2 - (-2)^3(-5)^0 \\ & (4) - (-8)(1) \\ & (4) - (-8) \\ & (4) + (8) = 12 \end{aligned}$$

$$\begin{aligned} 28) & (-3) - (-2)(-2)(-2)^2 \\ & (-3) - (-2)(-2)(4) \\ & (-3) - (16) \\ & (-3) + (-16) = -19 \end{aligned}$$

$$\begin{aligned} 29) & (-2) - 2^3 - 2^2 \\ & (-2) - 8 - 4 \\ & (-2) + (-8) + (-4) = -14 \end{aligned}$$

$$\begin{aligned} 30) & -3^2 - (-3)^2 - (-3) \\ & -9 - (9) - (-3) \\ & -9 + (-9) + (3) \\ & (-18) + (3) = -15 \end{aligned}$$

$$\begin{aligned} 31) & (-1)^2 - (-1)^3 - 1^4 \\ & (1) - (-1) - 1 \\ & (1) + (1) + (-1) \\ & (-1) + (2) = 1 \end{aligned}$$

$$\begin{aligned} 32) & (9-12)^2 - (5-8)^3(-3)^0 \\ & (-3)^2 - (-3)^3(-3)^0 \\ & (9) - (-27)(1) \\ & (9) - (-27) \\ & (9) + (27) = 36 \end{aligned}$$

$$\begin{aligned} 33) & (-2)^3(-2)^2 - (-2) \div (-2) \\ & (-8)(4) - (-2) \div (-2) \\ & (-32) - (-2) \div (-2) \\ & (-32) - (1) \\ & (-32) + (-1) = -33 \end{aligned}$$

$$\begin{aligned} 34) & (-2)^2 - 2^4 \div (-2)^3 - 2^2 \\ & (4) - 16 \div (-8) - 4 \\ & (4) - (-2) - 4 \\ & (4) + (2) + (-4) \\ & (-4) + (6) = 2 \end{aligned}$$



UNIT 2: ANSWER KEY

Order Of Operations

PRACTICE TEST #1

① $2^5 = 32$

② $(-3)^3 = -27$

③ $-3 + \boxed{(-6) \cdot (+2)}$
 $-3 + (-12) = -15$

④ $(-8) + \boxed{(-9) \div (-3)} - (-4)$
 $(-8) + (+3) - (-4)$
 $(-8) + (+3) + (+4)$
 $(+7) + (-8) = -1$

⑤ $(-6)^0 + (-3) - (-2)$
 $(+1) + (-3) - (-2)$
 $(+1) + (-3) + (+2)$
 $(+3) + (-3) = 0$

⑥ $(-3)^3 - 4^0 + (-3)(-4)$
 $(-27) - 1 + \boxed{(-3)(-4)}$
 $(-27) - 1 + (+12)$
 $(-27) + (-1) + (+12)$
 $(+12) + (-28) = -16$

PRACTICE TEST #2

① $3^4 = 81$

② $(-4)^2 = 16$

③ $-8 - (-2)(-1)^2 - (-5)$
 $-8 - \boxed{(-2)(+1)} - (-5)$
 $-8 - (-2) - (-5)$
 $-8 + (+2) + (+5) = -1$

④ $(-2) - (5-9)(-2) + (-8)$
 $(-2) - \boxed{(-4)(-2)} + (-8)$
 $(-2) - (+8) + (-8)$
 $(-2) + (-8) + (-8) = -18$

⑤ $\boxed{(-4)(+3)} - (-4)$
 $(-12) - (-4)$
 $(-12) + (+4) = -8$

⑥ $-3^2 - (-2) \div (+2) - (4-6)$
 $-3^2 - \boxed{(-2) \div (+2)} - (-2)$
 $-9 - (-1) - (-2)$
 $-9 + (+1) + (+2)$
 $(+3) + (-9) = -6$

Evaluating Expressions

1. SUBSTITUTING VALUES

$$\begin{aligned} \textcircled{1} \quad a + b + c \\ (3) + (-2) + (-4) \\ (3) + (-6) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad b - a \\ (-2) - (3) \\ (-2) + (-3) = -5 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad b - c \\ (-2) - (-4) \\ (-2) + (4) = 2 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad a + b - c \\ (3) + (-2) - (-4) \\ (3) + (-2) + (4) \\ (7) + (-2) = 5 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad c - ab \\ (-4) - (3)(-2) \\ (-4) - (-6) \\ (-4) + (6) = 2 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad ac + ab \\ (3)(-4) + (3)(-2) \\ (-12) + (-6) = -18 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad a - c \div b \\ (3) - (-4) \div (-2) \\ (3) - (2) \\ (3) + (-2) = 1 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad b + ac \div b \\ (-2) + (3)(-4) \div (-2) \\ (-2) + (-12) \div (-2) \\ (-2) + (6) = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad ac - ab \\ (3)(-4) - (3)(-2) \\ (-12) - (-6) \\ (-12) + (6) = -6 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad cb + ac \\ (-4)(-2) + (3)(-4) \\ (8) + (-12) = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad a - b - c \\ (3) - (-2) - (-4) \\ (3) + (2) + (4) = 9 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad ab - bc \\ (3)(-2) - (-2)(-4) \\ (-6) - (8) \\ (-6) + (-8) = -14 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad a + b \div b + c \\ (3) + (-2) \div (-2) + (-4) \\ (3) + (1) + (-4) \\ (4) + (-4) = 0 \end{aligned}$$

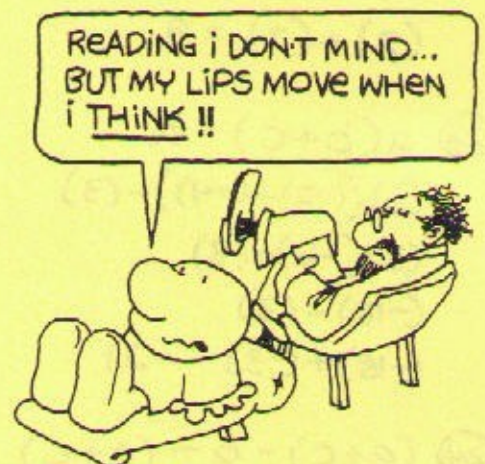
$$\begin{aligned} \textcircled{14} \quad abc \\ (3)(-2)(-4) = 24 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad c - bc + ac \\ (-4) - (-2)(-4) + (3)(-4) \\ (-4) - (8) + (-12) \\ (-4) + (-8) + (-12) = -24 \end{aligned}$$

$$\begin{aligned} \textcircled{16} \quad ab - abc \\ (3)(-2) - (3)(-2)(-4) \\ (-6) - (24) \\ (-6) + (-24) = -30 \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad b + bc \div b \\ (-2) + (-2)(-4) \div (-2) \\ (-2) + (8) \div (-2) \\ (-2) + (-4) = -6 \end{aligned}$$

$$\begin{aligned} \textcircled{18} \quad b - ab + c - bc \\ (-2) - (3)(-2) + (-4) - (-2)(-4) \\ (-2) - (-6) + (-4) - (8) \\ (-2) + (6) + (-4) + (-8) \\ (-14) + (6) = -8 \end{aligned}$$



Evaluating Expressions

$$\begin{aligned} \textcircled{19} \quad & a + b - c \cdot a - b \\ & (3) + (-2) - (-4) \cdot (3) - (-2) \\ & (3) + (-2) - (-12) - (-2) \\ & (3) + (-2) + (12) + (2) \\ & (17) + (-2) = 15 \end{aligned}$$

$$\begin{aligned} \textcircled{20} \quad & b - ac \div b - ab \\ & (-2) - (3)(-4) \div (-2) - (3)(-2) \\ & (-2) - (-12) \div (-2) - (3)(-2) \\ & (-2) - (6) - (3)(-2) \\ & (-2) - (6) - (-6) \\ & (-2) + (-6) + (6) \\ & (-8) + (6) = -2 \end{aligned}$$

$$\begin{aligned} \textcircled{21} \quad & b(a - b) \\ & (-2)((3) - (-2)) \\ & (-2)((3) + (2)) \\ & (-2)(5) = -10 \end{aligned}$$

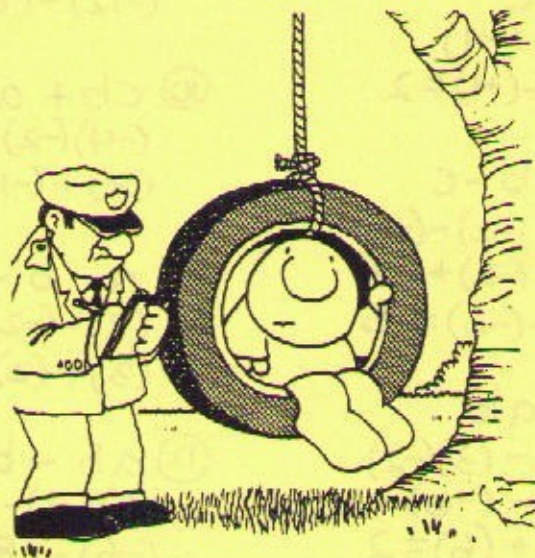
$$\begin{aligned} \textcircled{22} \quad & (b - c) + (a - c) \\ & ((-2) - (-4)) + ((3) - (-4)) \\ & ((-2) + (4)) + ((3) + (4)) \\ & (2) + (7) = 9 \end{aligned}$$

$$\begin{aligned} \textcircled{23} \quad & a(b + c) - a \\ & (3)((-2) + (-4)) - (3) \\ & (3)(-6) - (3) \\ & (-18) - (3) \\ & (-18) + (-3) = -21 \end{aligned}$$

$$\begin{aligned} \textcircled{24} \quad & (a + c) - b \div (a + c) \\ & ((3) + (-4)) - (-2) \div ((3) + (-4)) \end{aligned}$$

$$\begin{aligned} & (-1) - (-2) \div (-1) \\ & (-1) - (2) \\ & (-1) + (-2) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{25} \quad & ab - (b - a) \\ & (3)(-2) - ((-2) - (3)) \\ & (3)(-2) - ((-2) + (-3)) \\ & (3)(-2) - (-5) \\ & (-6) - (-5) \\ & (-6) + (5) = -1 \end{aligned}$$



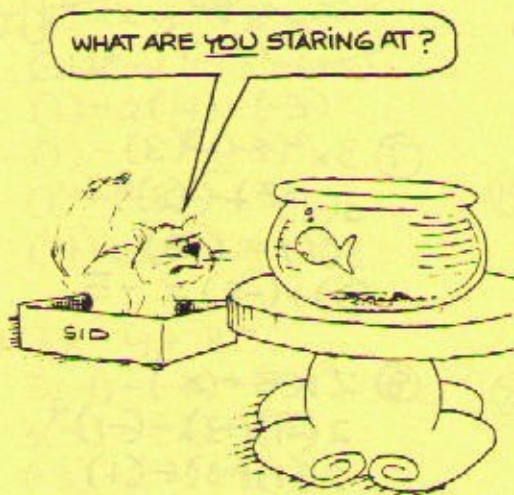
$$\begin{aligned} \textcircled{26} \quad & (a + b) - (c - b) \\ & ((3) + (-2)) - ((-4) - (-2)) \\ & (1) - ((-4) + (2)) \\ & (1) - (-2) \\ & (1) + (2) = 3 \end{aligned}$$

continued

Evaluating Expressions

$$\begin{aligned} \textcircled{27} \quad & a(b+c) - b(a-c) \\ & (3)((-2)+(-4)) - (-2)((3) - (-4)) \\ & (3)(-6) - (-2)((3)+(-4)) \\ & (3)(-6) - (-2)(7) \\ & (-18) - (-14) \\ & (-18) + (14) = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{28} \quad & (a-b)(b+c) \\ & ((3) - (-2))((-2) + (-4)) \\ & ((3) + (2))(-6) \\ & (5)(-6) = -30 \end{aligned}$$



2. COEFFICIENTS

$$\begin{aligned} \textcircled{1} \quad & 3x + y \\ & 3(-1) + (3) \\ & (-3) + (3) = 0 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & x - 2z \\ & (-1) - 2(-2) \\ & (-1) - (-4) \\ & (-1) + (4) = 3 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad & 3xy \\ & (3)(-1)(3) = -9 \end{aligned}$$

$$\begin{aligned} & (6) - (-6) \\ & (6) + (6) = 12 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & 4xz \\ & (4)(-1)(-2) = 8 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad & 3xy - x + y \\ & 3(-1)(3) - (-1) + (3) \\ & (-9) - (-1) + (3) \\ & (-9) + (1) + (3) \\ & (-9) + (4) = -5 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & y + 2x \\ & (3) + 2(-1) \\ & (3) + (-2) = 1 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & z - 5y \\ & (-2) - 5(3) \\ & (-2) - (15) \\ & (-2) + (-15) = -17 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad & z - 2y \cdot x \\ & (-2) - 2(3) \cdot (-1) \\ & (-2) - (6) \cdot (-1) \\ & (-2) - (-6) \\ & (-2) + (6) = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad & 4y - x \cdot 2z \\ & 4(3) - (-1) \cdot 2(-2) \\ & (12) - (-1) \cdot (-4) \\ & (12) - (4) \\ & (12) + (-4) = 8 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad & 3y \cdot x + 2y \\ & 3(3) \cdot (-1) + 2(3) \\ & (9) \cdot (-1) + (6) \\ & (-9) + (6) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad & x + 3z \div y \\ & (-1) + 3(-2) \div (3) \\ & (-1) + (-6) \div (3) \\ & (-1) + (-2) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad & x - 2y + 2z \\ & (-1) - 2(3) + 2(-2) \\ & (-1) - (6) + (-4) \\ & (-1) + (-6) + (-4) \\ & -11 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad & 4xyz + x \\ & 4(-1)(3)(-2) + (-1) \\ & (24) + (-1) = 23 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad & 3x - 3y - 3z \\ & 3(-1) - 3(3) - 3(-2) \\ & (-3) - (9) - (-6) \\ & (-3) + (-9) + (6) \\ & (-12) + (6) = -6 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad & 2y - 3z \\ & 2(3) - 3(-2) \end{aligned}$$

UNIT 3: ANSWER KEY

Evaluating Expressions

$$\begin{aligned} (16) \quad & x - y - 4xy \\ & (-4) - (-3) - 4(-1)(3) \\ & (-1) - (-3) - (-12) \\ & (-1) + (-3) + (12) \\ & (-4) + (12) = 8 \end{aligned}$$

$$\begin{aligned} (17) \quad & 3(a - b) \\ & 3((-2) - (-1)) \\ & 3((-2) + (1)) \\ & 3(-1) = -3 \end{aligned}$$

$$\begin{aligned} (18) \quad & 2(b + c) \\ & 2((-1) + (4)) \\ & 2(3) = 6 \end{aligned}$$

$$\begin{aligned} (19) \quad & 2a(2b - c) \\ & 2(-2)(2(-1) - (4)) \\ & 2(-2)((-2) + (-4)) \\ & 2(-2)(-6) = 24 \end{aligned}$$

$$\begin{aligned} (20) \quad & 3b(c - 2a) \\ & 3(-1)((4) - 2(-2)) \\ & 3(-1)((4) - (-4)) \\ & 3(-1)((4) + (4)) \\ & 3(-1)(8) = -24 \end{aligned}$$

$$\begin{aligned} (21) \quad & (a + b) - 3ab \\ & ((-2) + (-1)) - 3(-2)(-1) \\ & (-3) - (6) \\ & (-3) + (-6) = -9 \end{aligned}$$

$$\begin{aligned} (22) \quad & (c - b) + 4bc \\ & ((4) - (-1)) + 4(-1)(4) \\ & ((4) + (1)) + 4(-1)(4) \\ & (5) + 4(-1)(4) \\ & (5) + (-16) = -11 \end{aligned}$$

$$\begin{aligned} (23) \quad & 3ab(2a + b) \\ & 3(-2)(-1)(2(-2) + (-1)) \\ & 3(-2)(-1)((-4) + (-1)) \\ & 3(-2)(-1)(-5) = -30 \end{aligned}$$

$$\begin{aligned} (24) \quad & 4b(3a - 2c) \\ & 4(-1)(3(-2) - 2(4)) \\ & 4(-1)((-6) - (8)) \\ & 4(-1)((-6) + (-8)) \\ & 4(-1)(-14) = 56 \end{aligned}$$

3. EXPONENTS

$$\begin{aligned} (1) \quad & x^4 \\ & (-1)^4 = 1 \end{aligned}$$

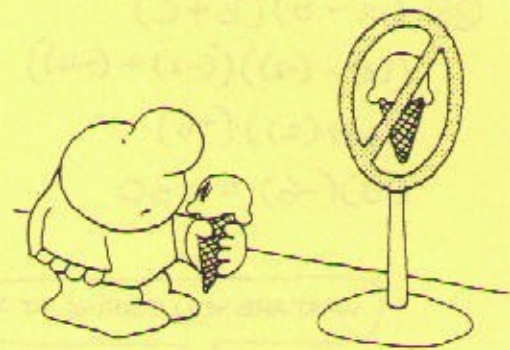
$$\begin{aligned} (2) \quad & y^2 \\ & (-2)^2 = 4 \end{aligned}$$

$$\begin{aligned} (3) \quad & y^3 \\ & (-2)^3 = -8 \end{aligned}$$

$$\begin{aligned} (4) \quad & z^0 \\ & (-3)^0 = 1 \end{aligned}$$

$$\begin{aligned} (5) \quad & 3xy^2 \\ & (3)(-1)(-2)^2 \\ & (3)(-1)(4) = -12 \end{aligned}$$

$$\begin{aligned} (6) \quad & 4x^3z \\ & (4)(-1)^3(-3) \\ & (4)(-1)(-3) = 12 \end{aligned}$$



$$\begin{aligned} (7) \quad & 3x^2 + y^3 \\ & 3(-1)^2 + (-2)^3 \\ & 3(1) + (-8) \\ & (3) + (-8) = -5 \end{aligned}$$

$$\begin{aligned} (8) \quad & 2xz - x^4 \\ & 2(-1)(-3) - (-1)^4 \\ & 2(-1)(-3) - (1) \\ & (6) - (1) \\ & (6) + (-1) = 5 \end{aligned}$$

$$\begin{aligned} (9) \quad & 3yz - y^2 \\ & 3(-2)(-3) - (-2)^2 \\ & 3(-2)(-3) - (4) \\ & (18) - (4) \\ & (18) + (-4) = 14 \end{aligned}$$

Evaluating Expressions

$$\begin{aligned} \textcircled{10} \quad & xy + 3x^4y \\ & (-1)(-2) + 3(-1)^4(-2) \\ & (-1)(-2) + 3(1)(-2) \\ & (2) + (-6) = -4 \end{aligned}$$

$$\begin{aligned} & (-1)(1) + (-1)(4) \\ & (-1) + (-4) = -5 \end{aligned}$$

$$\begin{aligned} \textcircled{21} \quad & 2(a-b)^2 \\ & 2((-2) - (-3))^2 \\ & 2((-2) + (-3))^2 \\ & 2(-5)^2 \\ & 2(25) = 50 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad & x^2y^2z^2 \\ & (-1)^2(-2)^2(-3)^2 \\ & (1)(4)(9) = 36 \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad & 3x^2 - x^3 \div z^0 \\ & 3(-1)^2 - (-1)^3 \div (-3)^0 \\ & 3(1) - (-1) \div (1) \\ & (3) - (-1) \div (1) \\ & (3) - (-1) \\ & (3) + (1) = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{22} \quad & 3c^2(b-c)^3 \\ & 3(-1)^2((3) - (-1))^3 \\ & 3(-1)^2((3) + (1))^3 \\ & 3(1)(4)^3 \\ & 3(1)(64) = 192 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad & 2xy^3z \\ & 2(-1)(-2)^3(-3) \\ & 2(-1)(-8)(-3) = -48 \end{aligned}$$

$$\begin{aligned} \textcircled{18} \quad & 2y^3 - z^2 \div 3x \\ & 2(-2)^3 - (-3)^2 \div 3(-1) \\ & 2(-8) - (9) \div 3(-1) \\ & (-16) - (9) \div (-3) \\ & (-16) - (-3) \\ & (-16) + (3) = -13 \end{aligned}$$

$$\begin{aligned} \textcircled{23} \quad & (a+c)^2 - (b-a)^2 \\ & ((-2) + (-1))^2 - ((3) - (-2))^2 \\ & ((-2) + (-1))^2 - ((3) + (2))^2 \\ & (-3)^2 - (5)^2 \\ & (9) - (25) \\ & (9) + (-25) = -16 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad & x^2 - 2y^2 - z \\ & (-1)^2 - 2(-2)^2 - (-3) \\ & (1) - 2(4) - (-3) \\ & (1) - (8) - (-3) \\ & (1) + (-8) + (3) \\ & (4) + (-8) = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{19} \quad & (x+y)^2 \\ & ((-1) + (-2))^2 \\ & (-3)^2 = 9 \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad & 3x - y + z^2 \\ & 3(-1) - (-2) + (-3)^2 \\ & 3(-1) - (-2) + (9) \\ & (-3) - (-2) + (9) \\ & (-3) + (2) + (9) \\ & (-3) + (11) = 8 \end{aligned}$$

$$\begin{aligned} \textcircled{20} \quad & (y+z)^3 \\ & ((-2) + (-3))^3 \\ & (-5)^3 = -125 \end{aligned}$$

$$\begin{aligned} \textcircled{24} \quad & 2ab(a-c)^3 \\ & 2(-2)(3)((-2) - (-1))^3 \\ & 2(-2)(3)((-2) + (1))^3 \\ & 2(-2)(3)(-1)^3 \\ & 2(-2)(3)(-1) \\ & 12 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad & 2xyz - x^2 \\ & 2(-1)(-2)(-3) - (-1)^2 \\ & 2(-1)(-2)(-3) - (1) \\ & (-12) - (1) \\ & (-12) + (-1) = -13 \end{aligned}$$

I DON'T MIND IT
RAINING ON MY PARADE
...IT'S THE LIGHTNING
THAT GETS TO ME!



$$\begin{aligned} \textcircled{16} \quad & xy^0 + xy^2 \\ & (-1)(-2)^0 + (-1)(-2)^2 \end{aligned}$$

UNIT 3: ANSWER KEY

Evaluating Expressions

REVIEW & PRACTICE

$$\begin{aligned} \textcircled{1} \quad a - b \\ (-1) - (-3) \\ (-1) + (3) = 2 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad b - c \\ (-3) - (2) \\ (-3) + (-2) = -5 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad a + b \cdot c \\ (-1) + (-3) \cdot (2) \\ (-1) + (-6) = -7 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad b - c \div a \\ (-3) - (2) \div (-1) \\ (-3) - (-2) \\ (-3) + (2) = -1 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad b - ab \\ (-3) - (-1)(-3) \\ (-3) - (3) \\ (-3) + (-3) = -6 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad c + ac \\ (2) + (-1)(2) \\ (2) + (-2) = 0 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad abc \\ (-1)(-3)(2) = 6 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad ac - ab \\ (-1)(2) - (-1)(-3) \\ (-2) - (3) \\ (-2) + (-3) = -5 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad bc \div a \\ (-3)(2) \div (-1) \\ (-6) \div (-1) = 6 \end{aligned}$$

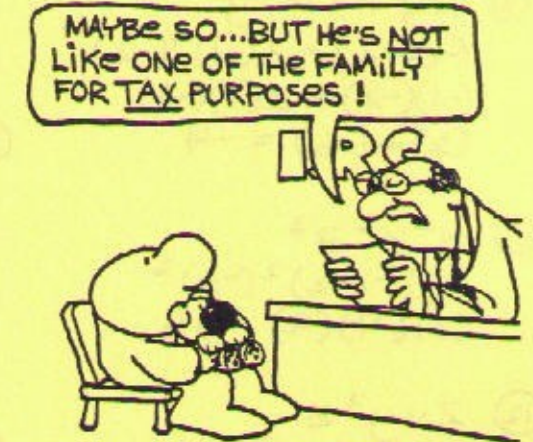
$$\begin{aligned} \textcircled{10} \quad bc - abc \\ (-3)(2) - (-1)(-3)(2) \\ (-6) - (6) \\ (-6) + (-6) = -12 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad 3xy - z \\ 3(-2)(-3) - (-1) \\ (18) - (-1) \\ (18) + (1) = 19 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad 2y - 3z \\ 2(-3) - 3(-1) \\ (-6) - (-3) \\ (-6) + (3) = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad 4x - 2y \div 3z \\ 4(-2) - 2(-3) \div 3(-1) \\ (-8) - (-6) \div (-3) \\ (-8) - (2) \\ (-8) + (-2) = -10 \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad 4y - 6z \div x \\ 4(-3) - 6(-1) \div (-2) \\ (-12) - (-6) \div (-2) \\ (-12) - (3) \\ (-12) + (-3) \\ -15 \end{aligned}$$



$$\begin{aligned} \textcircled{15} \quad 5xz - 3y \\ 5(-2)(-1) - 3(-3) \\ (10) - (-9) \\ (10) + (9) = 19 \end{aligned}$$

$$\begin{aligned} \textcircled{16} \quad 2yz + 3x \\ 2(-3)(-1) + 3(-2) \\ (6) + (-6) = 0 \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad b^2 \\ (-2)^2 = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{18} \quad b^3 \\ (-2)^3 = -8 \end{aligned}$$

$$\begin{aligned} \textcircled{19} \quad ab^4 \\ (2)(-2)^4 \\ (2)(16) = 32 \end{aligned}$$

$$\begin{aligned} \textcircled{20} \quad b^3c^4 \\ (-2)^3(-1)^4 \\ (-8)(1) = -8 \end{aligned}$$

UNIT 3: ANSWER KEY

Evaluating Expressions

$$\begin{aligned} (21) \quad & 2b^2 - 3a \\ & 2(-2)^2 - 3(2) \\ & 2(4) - 3(2) \\ & (8) - (6) \\ & (8) + (-6) = 2 \end{aligned}$$

$$\begin{aligned} (22) \quad & 6c^3 - ab \\ & 6(-1)^3 - (2)(-2) \\ & 6(-1) - (2)(-2) \\ & (-6) - (-4) \\ & (-6) + (4) = -2 \end{aligned}$$

$$\begin{aligned} (23) \quad & 2ab^2c^2 \\ & 2(2)(-2)^2(-1)^2 \\ & 2(2)(4)(1) = 16 \end{aligned}$$

$$\begin{aligned} (24) \quad & 3a^2b^3 \\ & 3(2)^2(-2)^3 \\ & 3(4)(-8) = -96 \end{aligned}$$

$$\begin{aligned} (25) \quad & a^0bc^5 \\ & (2)^0(-2)(-1)^5 \\ & (1)(-2)(-1) = 2 \end{aligned}$$

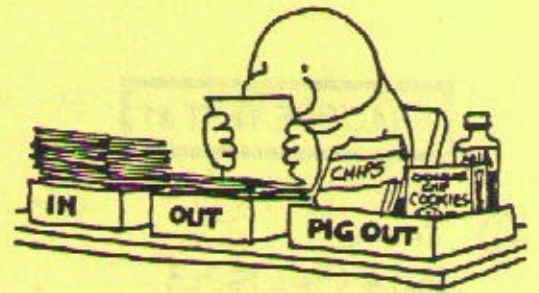
$$\begin{aligned} (26) \quad & (a-b)^2 \\ & ((2)-(-2))^2 \\ & ((2)+(2))^2 \\ & (4)^2 = 16 \end{aligned}$$

$$\begin{aligned} (27) \quad & (b+c)^2 \\ & ((-2)+(-1))^2 \\ & (-3)^2 \\ & 9 \end{aligned}$$

$$\begin{aligned} (28) \quad & 3(b-c)^3 \\ & 3((-2)-(-1))^3 \\ & 3((-2)+(1))^3 \\ & 3(-1)^3 \\ & 3(-1) = -3 \end{aligned}$$

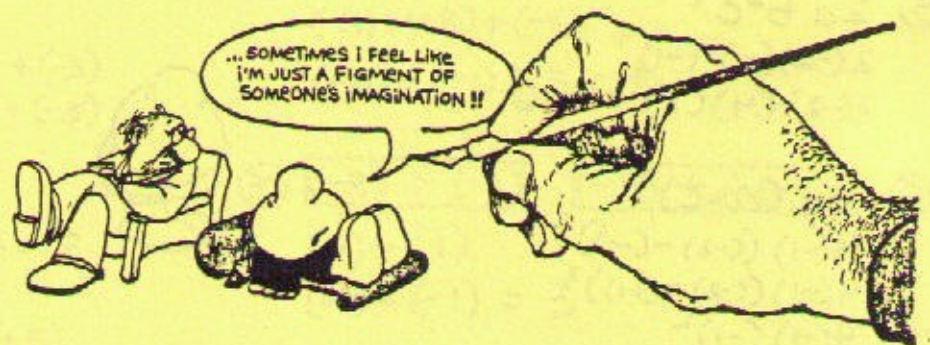
$$\begin{aligned} (29) \quad & 4(c-a)^2 \\ & 4((-1)-(2))^2 \\ & 4((-1)+(-2))^2 \\ & 4(-3)^2 \\ & 4(9) = 36 \end{aligned}$$

$$\begin{aligned} (30) \quad & 3ab^2(a+c) \\ & 3(2)(-2)^2((2)+(-1)) \\ & 3(2)(-2)^2(1) \\ & 3(2)(4)(1) = 24 \end{aligned}$$



$$\begin{aligned} (31) \quad & 2bc^3(a-b) \\ & 2(-2)(-1)^3((2)-(-2)) \\ & 2(-2)(-1)^3((2)+(2)) \\ & 2(-2)(-1)^3(4) \\ & 2(-2)(-1)(4) = 16 \end{aligned}$$

$$\begin{aligned} (32) \quad & (b-c)^3 - 3b^2 \\ & ((-2)-(-1))^3 - 3(-2)^2 \\ & ((-2)+(1))^3 - 3(-2)^2 \\ & (-1)^3 - 3(-2)^2 \\ & (-1) - 3(4) \\ & (-1) + (-12) = -13 \end{aligned}$$



Evaluating Expressions

PRACTICE TEST #1

① $a + c$
 $(-2) + (-1) = -3$

② $3a - 2c$
 $3(-2) - 2(-1)$
 $(-6) - (-2)$
 $(-6) + (+2) = -4$

③ $a + b - c$
 $(-2) + (2) - (-1)$
 $(-2) + (+2) + (+1)$
 $(+3) + (-2) = 1$

④ $4a - 3c^3$
 $4(-2) - 3(-1)^3$
 $4(-2) - 3(-1)$
 $(-8) - (-3)$
 $(-8) + (+3) = -5$

⑤ $2ab^2c^4$
 $2(-2)(2)^2(-1)^4$
 $2(-2)(4)(1) = -16$

⑥ $4c(a-c)^2$
 $4(-1)((-2) - (-1))^2$
 $4(-1)((-2) + (+1))^2$
 $4(-1)(-1)^2$
 $4(-1)(1) = -4$



PRACTICE TEST #2

① $x + y + z$
 $(+1) + (-3) + (+2)$
 $(-4) + (+2) = -2$

② $4x - 5y$
 $4(-1) - 5(-3)$
 $(-4) - (-15)$
 $(-4) + (+15) = 11$

③ $2x + 2y$
 $2(-1) + 2(-3)$
 $(-2) + (-6) = -8$

④ $3x^3 - 2y$
 $3(-1)^3 - 2(-3)$
 $3(-1) - 2(-3)$
 $(-3) - (-6)$
 $(-3) + (+6) = 3$

⑤ $5x^2yz$
 $5(-1)^2(-3)(2)$
 $5(1)(-3)(2) = -30$

⑥ $2y(x-y)^2$
 $2(-3)((-1) - (-3))^2$
 $2(-3)((-1) + (3))^2$
 $2(-3)(2)^2$
 $2(-3)(4) = -24$

UNITS 1-3: ANSWER KEY

Cumulative Review

REVIEW & PRACTICE

① $<$ ② $<$ ③ $>$ ④ $=$

⑤ $(-4) + (-7) = -11$

⑥ $(-3) \times (-5) = 15$

⑦ $(-8) - (+4)$
 $(-8) + (-4) = -12$

⑧ $(-6) - (-10)$
 $(-6) + (+10) = 4$

⑨ $(+12) \div (-2) = -6$

⑩ $(-6) \times (+5) = -30$

⑪ $(-3) - (-8)$
 $(-3) + (+8) = 5$

⑫ $(-4) + (+9) = 5$

⑬ $(-6) + (-4) - (+2) - (-6) - (-8) + (-3)$
 $(-6) + (-4) + (-2) + (+6) + (+8) + (-3)$
 $(+14) + (-15) = -1$

⑭ $(-4) \times (-1) \times (+2) \times (-1) \times (-1) = 8$

⑮ $(+11) - (-12) + (-4) - (-2) + (+5)$
 $(+11) + (+12) + (-4) + (+2) + (+5)$
 $(+30) + (-4) = 26$

⑯ $3^3 = 27$ ⑰ $(-2)^3 = -8$

⑱ $2^4 = 16$ ⑲ $(-2)^2 = 4$

⑳ $-2^2 = -4$

㉑ $-5^2 = -25$

㉒ $(-3)^0 = 1$

㉓ $-3^3 = -27$

㉔ $(-4)^2 = 16$

㉕ $-4^2 = -16$

㉖ $-5^3 = -125$

㉗ $(-7)^2 = 49$

㉘ $(-2) + (-3) \times (4) - (-5)$

$(-2) + (-12) - (-5)$

$(-2) + (-12) + (5)$

$(5) + (-14)$

-9

...IT'S NOT ALL THAT UNUSUAL—
 A LOT OF ONE-PANEL CARTOON
 CHARACTERS HAVE
 CLAUSTROPHOBIA!!



㉙ $(-6) - (-8) + (+3) \cdot (-2)$

$(-6) - (-8) + (-6)$

$(-6) + (+8) + (-6)$

$(+8) + (-12) = -4$

㉚ $(-8) \div (-2) - (-6) \div (-6)$

$(4) - (1)$

$(4) + (-1) = 3$

㉛ $(-1)(-2) - (-3)(-2) - (-4)$

$(2) - (6) - (-4)$

$(2) + (-6) + (+4)$

$(+6) + (-6) = 0$

UNITS 1-3: ANSWER KEY

Cumulative Review

$$\begin{aligned} 32 \quad & (-3)^2 - (-2)^3 + (-3)^0 \\ & (9) - (-8) + (1) \\ & (9) + (+8) + (1) = 18 \end{aligned}$$

$$\begin{aligned} 33 \quad & (-4) - (-2)^2 - 3^2 \\ & (-4) - (4) - 9 \\ & (-4) + (-4) + (-9) = -17 \end{aligned}$$

$$\begin{aligned} 34 \quad & (+3)(-2) - (-2)^2(-1)^3 \\ & (+3)(-2) - (4)(-1) \\ & (-6) - (-4) \\ & (-6) + (+4) = -2 \end{aligned}$$

$$\begin{aligned} 35 \quad & (-2) + (-1)^2 \times (-2)^0 - (-3)^2 \\ & (-2) + \boxed{(1) \times (1)} - (9) \\ & (-2) + (1) - (9) \\ & (-2) + (1) + (-9) \\ & (-1) + (-9) = -10 \end{aligned}$$

$$\begin{aligned} 36 \quad & -3^2 - (-2)(-1)(+3) - 2^2 \\ & -9 - \boxed{(-2)(-1)(+3)} - 4 \\ & -9 - (6) - 4 \\ & -9 + (-6) + (-4) = -19 \end{aligned}$$

$$\begin{aligned} 37 \quad & (-5) \div (-1)^3 \times (-4) - (-2)^3 \\ & \boxed{(-5) \div (-1)} \times (-4) - (-8) \\ & \boxed{(5) \times (-4)} - (-8) \\ & (-20) - (-8) \\ & (-20) + (8) = -12 \end{aligned}$$

$$\begin{aligned} 38 \quad & (-1)(-2) - (-3) \div (-1) - (-2)^2 \\ & \boxed{(-1)(-2)} - \boxed{(-3) \div (-1)} - (4) \\ & (2) - (3) - (4) \\ & (2) + (-3) + (-4) \\ & (2) + (-7) = -5 \end{aligned}$$

$$\begin{aligned} 39 \quad & -1^2 - (-1)^3 - (-1)^4 - (-1)^5 \\ & -1 - (-1) - (1) - (-1) \\ & -1 + (+1) + (-1) + (+1) \\ & (2) + (-2) = 0 \end{aligned}$$

$$\begin{aligned} 40 \quad & a + b + c \\ & (-1) + (-2) + (2) \\ & (2) + (-3) = -1 \end{aligned}$$

$$\begin{aligned} 41 \quad & 2a - 3b \\ & 2(-1) - 3(-2) \\ & (-2) - (-6) \\ & (-2) + (+6) = 4 \end{aligned}$$

$$\begin{aligned} 42 \quad & a + 2b - c \\ & (-1) + 2(-2) - (2) \\ & (-1) + (-4) - (2) \\ & (-1) + (-4) + (-2) = -7 \end{aligned}$$

$$\begin{aligned} 43 \quad & a - b + 2c \\ & (-1) - (-2) + 2(2) \\ & (-1) - (-2) + (4) \\ & (-1) + (+2) + (4) = 5 \end{aligned}$$

Cumulative Review

$$\begin{aligned} 44 \quad a^2 - bc \\ (-1)^2 - (-2)(2) \\ (1) - (-2)(2) \\ (1) - (-4) \\ (1) + (+4) = 5 \end{aligned}$$

$$\begin{aligned} 50 \quad x^2 - xy \\ (2)^2 - (2)(-3) \\ (4) - (-6) \\ (4) + (6) = 10 \end{aligned}$$

$$\begin{aligned} 56 \quad 2(x+y) - y^2 \\ 2((-1) + (-2)) - (-2)^2 \\ 2(-3) - (4) \\ (-6) - (4) \\ (-6) + (-4) = -10 \end{aligned}$$

$$\begin{aligned} 45 \quad a - b^2c \\ (-1) - (-2)^2(2) \\ (-1) - (4)(2) \\ (-1) - (8) \\ (-1) + (-8) = -9 \end{aligned}$$

$$\begin{aligned} 51 \quad (x+y)^2 \\ ((2) + (-3))^2 \\ (-1)^2 = 1 \end{aligned}$$

$$\begin{aligned} 57 \quad x^3 - y^3 \\ (-1)^3 - (-2)^3 \\ (-1) - (-8) \\ (-1) + (+8) = 7 \end{aligned}$$

$$\begin{aligned} 52 \quad (y+z)^2 \\ ((-3) + (-2))^2 \\ (-5)^2 = 25 \end{aligned}$$

$$\begin{aligned} 46 \quad a + 2bc \\ (-1) + 2(-2)(2) \\ (-1) + (-8) = -9 \end{aligned}$$

$$\begin{aligned} 53 \quad x(y+x) \\ (2)((-3) + (2)) \\ (2)(-1) = -2 \end{aligned}$$

$$\begin{aligned} 47 \quad b^2 - a^2c^2 \\ (-2)^2 - (-1)^2(2)^2 \\ (4) - (1)(4) \\ (4) - (4) \\ (4) + (-4) = 0 \end{aligned}$$

$$\begin{aligned} 54 \quad x - y + 2z \\ (-1) - (-2) + 2(-3) \\ (-1) - (-2) + (-6) \\ (-1) + (2) + (-6) \\ (2) + (-7) = -5 \end{aligned}$$

$$\begin{aligned} 58 \quad 4(x+z) - 2(x+y) \\ 4((-1) + (-3)) - 2((-1) + (-2)) \\ 4(-4) - 2(-3) \\ (-16) - (-6) \\ (-16) + (+6) = -10 \end{aligned}$$

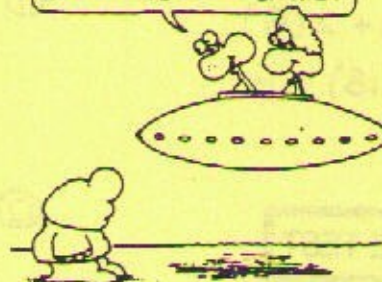
$$\begin{aligned} 48 \quad 3xy \\ 3(2)(-3) = -18 \end{aligned}$$

$$\begin{aligned} 55 \quad 3x - y^2 \\ 3(-1) - (-2)^2 \\ 3(-1) - (4) \\ (-3) - (4) \\ (-3) + (-4) \\ -7 \end{aligned}$$

$$\begin{aligned} 59 \quad x^2 + y^2 + z^2 \\ (-1)^2 + (-2)^2 + (-3)^2 \\ (1) + (4) + (9) \\ 14 \end{aligned}$$

$$\begin{aligned} 49 \quad 2x - 3z \\ 2(2) - 3(-2) \\ (4) - (-6) \\ (4) + (6) = 10 \end{aligned}$$

-YOU GOT A GIFT SHOP ANYWHERE AROUND HERE? WE PROMISED THE KIDS WE'D BRING THEM T-SHIRTS!



Cumulative Review

$$\begin{aligned} \textcircled{60} \quad & 2 \times y - y z \\ & 2(-1)(-2) - (-2)(-3) \\ & (4) - (6) \\ & (4) + (-6) = -2 \end{aligned}$$

$$\begin{aligned} \textcircled{61} \quad & 2 \times 3y^2 + 3y \\ & 2(-1)^3(-2)^2 + 3(-2) \\ & 2(-1)(+4) + 3(-2) \\ & (-8) + (-6) = -14 \end{aligned}$$

$$\begin{aligned} \textcircled{62} \quad & 3 \times y^2 + 2z^2 \\ & 3(-1)(-2)^2 + 2(-3)^2 \\ & 3(-1)(4) + 2(9) \\ & (-12) + (18) = 6 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad & (-2) - \boxed{(-4) \times (-3)} \\ & (-2) - (12) \\ & (-2) + (-12) = -14 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad & -1^2 + (-3)^2 \\ & -1 + (+9) = 8 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad & (-2)(-3) - (-1)^0 \\ & (-2)(-3) - (1) \\ & (6) - (1) \\ & (6) + (-1) = 5 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad & (-2) + (+4) - (-3) - (-7) \\ & (-2) + (4) + (3) + (-7) \\ & (7) + (-9) = -2 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad & a + b - c \\ & (-2) + (-3) - (-2) \\ & (-2) + (-3) + (-2) \\ & -7 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad & 2a + b^2 \\ & 2(-2) + (-3)^2 \\ & 2(-2) + (9) \\ & (-4) + (9) = 5 \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad & 2(a + b) \\ & 2((-2) + (-3)) \\ & 2(-5) \\ & -10 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad & a^2 - 2bc \\ & (-2)^2 - 2(-3)(2) \\ & (4) - (-12) \\ & (4) + (+12) = 16 \end{aligned}$$

$$\begin{aligned} \textcircled{16} \quad & abc - 2ab \\ & (-2)(-3)(2) - 2(-2)(-3) \\ & (12) - (12) = 0 \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad & 3a - 2b + c^2 \\ & 3(-2) - 2(-3) + (2)^2 \\ & 3(-2) - 2(-3) + (4) \\ & (-6) - (-6) + (4) \\ & (-6) + (6) + (4) = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{18} \quad & a^2 - b^2 - c^2 \\ & (-2)^2 - (-3)^2 - (2)^2 \\ & (4) - (9) - (4) \\ & (4) + (-9) + (-4) = -9 \end{aligned}$$

$$\begin{aligned} \textcircled{19} \quad & (-3)(-1)^2 - (-2)^3(-4)^0 \\ & (-3)(1) - (-8)(1) \\ & (-3) - (-8) \\ & (-3) + (+8) = 5 \end{aligned}$$

$$\begin{aligned} \textcircled{20} \quad & (-6) + (-1)^4(-2)^2 - 1^3 \\ & (-6) + (1)(4) - 1 \\ & (-6) + (4) + (-1) \\ & (4) + (-7) = -3 \end{aligned}$$

PRACTICE TEST

$$\textcircled{1} \quad >$$

$$\textcircled{2} \quad (-3) + (-5) = -8$$

$$\begin{aligned} \textcircled{3} \quad & (-2) - (+7) \\ & (-2) + (-7) = -9 \end{aligned}$$

$$\textcircled{4} \quad (-4) \times (+3) = -12$$

$$\textcircled{5} \quad (-12) \div (-2) = 6$$

$$\textcircled{6} \quad (-2)^3 = -8$$

$$\textcircled{7} \quad -3^2 = -9$$

Solving Equations

1. SIMPLE EQUATIONS

$$\textcircled{1} \quad x + 15^{-15} = 2^{-15}$$

$$x = -13$$

$$\textcircled{2} \quad a + 8^{-8} = -4^{-8}$$

$$a = -12$$

$$\textcircled{3} \quad n - 5^{+5} = -2^{+5}$$

$$n = 3$$

$$\textcircled{4} \quad c - 12^{+12} = 8^{+12}$$

$$c = 20$$

$$\textcircled{5} \quad 5^{+15} = a - 15^{+15}$$

$$20 = a$$

$$a = 20$$

$$\textcircled{6} \quad 14^{-12} = n + 12^{-12}$$

$$2 = n$$

$$n = 2$$

$$\textcircled{7} \quad 9^{-7} = x + 7^{-7}$$

$$2 = x$$

$$x = 2$$

$$\textcircled{8} \quad -10^{+4} = c - 4^{+4}$$

$$-6 = c$$

$$c = -6$$

$$\textcircled{9} \quad 11^{-11} + n = 16^{-11}$$

$$n = 5$$

$$\textcircled{10} \quad 12^{-12} + a = -2^{-12}$$

$$a = -14$$

$$\textcircled{11} \quad 9^{-9} - x = 4^{-9}$$

$$-x = -5$$

$$x = 5$$

$$\textcircled{12} \quad 8^{-8} - n = -3^{-8}$$

$$-n = -11$$

$$n = 11$$

$$\textcircled{13} \quad 7^{-5} = 5^{-5} - a$$

$$2 = -a$$

$$a = -2$$

$$\textcircled{14} \quad -6^{-3} = 3^{-3} - n$$

$$-9 = -n$$

$$n = 9$$

$$\textcircled{15} \quad n + 1^{-1} = 1^{-1}$$

$$n = 0$$

$$\textcircled{16} \quad x + 6^{-6} = -6^{-6}$$

$$x = -12$$

MOM'S DINER



$$\textcircled{17} \quad 3^{-3} - a = 4^{-3}$$

$$-a = 1$$

$$a = -1$$

$$\textcircled{18} \quad 12^{-12} - n = -1^{-12}$$

$$-n = -13$$

$$n = 13$$

$$\textcircled{19} \quad 3^{-8} = 8^{-8} - x$$

$$-5 = -x$$

$$x = 5$$

$$\textcircled{20} \quad -2^{+5} = -5^{+5} - n$$

$$3 = -n$$

$$n = -3$$

Solving Equations

2. TWO-STEP EQUATIONS

$$\begin{aligned} \textcircled{1} \quad 4n + 2^{-2} &= 26^{-2} \\ 4n &= 24 \\ \left(\frac{1}{4}\right)(4n) &= \left(\frac{1}{4}\right)(24) \\ n &= \frac{24}{4} \\ n &= 6 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 2n - 4^{+4} &= 6^{+4} \\ 2n &= 10 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(10) \\ n &= \frac{10}{2} \\ n &= 5 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad -2x - 1^{+1} &= 9^{+1} \\ -2x &= 10 \\ \left(-\frac{1}{2}\right)(-2x) &= \left(-\frac{1}{2}\right)(10) \\ x &= \frac{-10}{2} \\ x &= -5 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad -3a + 5^{-5} &= 20^{-5} \\ -3a &= 15 \\ \left(-\frac{1}{3}\right)(-3a) &= \left(-\frac{1}{3}\right)(15) \\ a &= \frac{-15}{3} \\ a &= -5 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad 3x + 2^{-2} &= 11^{-2} \\ 3x &= 9 \\ \left(\frac{1}{3}\right)(3x) &= \left(\frac{1}{3}\right)(9) \\ x &= \frac{9}{3} \\ x &= 3 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad 4a - 3^{+3} &= -15^{+3} \\ 4a &= -12 \\ \left(\frac{1}{4}\right)(4a) &= \left(\frac{1}{4}\right)(-12) \\ a &= \frac{-12}{4} \\ a &= -3 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad 8^{-4} &= 2n + 4^{-4} \\ 4 &= 2n \\ \left(\frac{1}{2}\right)(4) &= \left(\frac{1}{2}\right)(2n) \\ \frac{4}{2} &= n \\ n &= 2 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad -12^{-3} &= 3a + 3^{-3} \\ -15 &= 3a \\ \left(\frac{1}{3}\right)(-15) &= \left(\frac{1}{3}\right)(3a) \\ \frac{-15}{3} &= a \\ a &= -5 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad -6^{+6} &= 5x - 6^{+6} \\ 0 &= 5x \\ \left(\frac{1}{5}\right)(0) &= \left(\frac{1}{5}\right)(5x) \\ 0 &= x \\ x &= 0 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad 9^{+3} &= -4n - 3^{+3} \\ 12 &= -4n \\ \left(-\frac{1}{4}\right)(12) &= \left(-\frac{1}{4}\right)(-4n) \\ \frac{-12}{4} &= n \\ n &= -3 \end{aligned}$$

IN THE
YELLOW PAGES
OF LIFE
...IM LISTED UNDER
MISCELLANEOUS!!



$$\begin{aligned} \textcircled{11} \quad 6^{-6} - 3x &= 8^{-6} \\ -3x &= 2 \\ \left(-\frac{1}{3}\right)(-3x) &= \left(-\frac{1}{3}\right)(2) \\ x &= \frac{-2}{3} \end{aligned}$$

UNIT 4: ANSWER KEY

Solving Equations

$$\begin{aligned} (12) \quad 5n + 8^{-8} &= -3^{-8} \\ 5n &= -11 \\ \left(\frac{1}{5}\right)(5n) &= \left(\frac{1}{5}\right)(-11) \\ n &= \frac{-11}{5} \end{aligned}$$

$$\begin{aligned} (13) \quad 14^{-14} - 6a &= -2^{-14} \\ -6a &= -16 \\ \left(\frac{-1}{6}\right)(-6a) &= \left(\frac{-1}{6}\right)(-16) \\ a &= \frac{16}{6} \\ a &= \frac{8}{3} \end{aligned}$$

$$\begin{aligned} (14) \quad 8^{-8} - 2n &= 8^{-8} \\ -2n &= 0 \\ \left(\frac{-1}{2}\right)(-2n) &= \left(\frac{-1}{2}\right)(0) \\ n &= 0 \end{aligned}$$

$$\begin{aligned} (15) \quad 4^{-4} - 4x &= -10^{-4} \\ -4x &= -14 \\ \left(\frac{-1}{4}\right)(-4x) &= \left(\frac{-1}{4}\right)(-14) \\ x &= \frac{14}{4} \quad x = \frac{7}{2} \end{aligned}$$

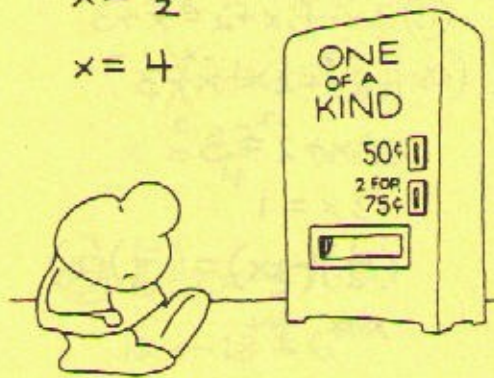
$$\begin{aligned} (16) \quad 2^{-2} + 8a &= 20^{-2} \\ 8a &= 18 \\ \left(\frac{1}{8}\right)(8a) &= \left(\frac{1}{8}\right)(18) \\ a &= \frac{18}{8} \quad a = \frac{9}{4} \end{aligned}$$

3. COMBINING TERMS

$$\begin{aligned} (1) \quad 2n - 5 &= 4n - 8 - n \\ 2n - 5 &= 3n - 8 \\ -n - 5^{+5} &= -8^{+5} \\ -n &= -3 \\ n &= 3 \end{aligned}$$

$$\begin{aligned} (2) \quad 5x + 6 &= 2x + 14 + x \\ 5x + 6 &= 3x + 14 \\ 2x + 6^{-6} &= 14^{-6} \\ 2x &= 8 \end{aligned}$$

$$\begin{aligned} \left(\frac{1}{2}\right)(2x) &= \left(\frac{1}{2}\right)(8) \\ x &= \frac{8}{2} \\ x &= 4 \end{aligned}$$



$$\begin{aligned} (3) \quad 10 - 3a &= a - 14 + 4a \\ 10 - 3a &= 5a - 14 \\ 10 - 8a &= -14 \\ -8a &= -24 \\ \left(\frac{-1}{8}\right)(-8a) &= \left(\frac{-1}{8}\right)(-24) \\ a &= \frac{24}{8} \quad a = 3 \end{aligned}$$

$$\begin{aligned} (4) \quad 6 + 4n &= n - 12 + 5n \\ 6 + 4n &= 6n - 12 \\ 6 - 2n &= -12 \\ -2n &= -18 \\ \left(\frac{-1}{2}\right)(-2n) &= \left(\frac{-1}{2}\right)(-18) \\ n &= \frac{18}{2} \quad n = 9 \end{aligned}$$

$$\begin{aligned} (5) \quad n - 5 + 3n &= 6 + 7n - 8 \\ 4n - 5 &= 7n - 2 \\ -3n - 5^{+5} &= -2^{+5} \\ -3n &= 3 \\ \left(\frac{-1}{3}\right)(-3n) &= \left(\frac{-1}{3}\right)(3) \\ n &= -\frac{3}{3} \quad n = -1 \end{aligned}$$

$$\begin{aligned} (6) \quad 2a + 5 - 4a &= 3a + 2 - 6a \\ -2a + 5 &= -3a + 2 \\ a + 5^{-5} &= 2^{-5} \\ a &= -3 \end{aligned}$$

$$\begin{aligned} (7) \quad 4a - 6 &= 2a - 5 + 4a \\ 4a - 6 &= 6a - 5 \\ -2a - 6^{+6} &= -5^{+6} \\ -2a &= 1 \\ \left(\frac{-1}{2}\right)(-2a) &= \left(\frac{-1}{2}\right)(1) \\ a &= \frac{-1}{2} \end{aligned}$$

UNIT 4: ANSWER KEY

Solving Equations

$$\begin{aligned} \textcircled{8} \quad 3x - 4 + 7x &= 18 - x \\ 10x - 4 &= 18 - x \\ 11x - 4 &= 18 \\ 11x &= 22 \\ \left(\frac{1}{11}\right)(11x) &= \left(\frac{1}{11}\right)(22) \\ x &= \frac{22}{11} \quad x = 2 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad 5n &= 3n - 4n + 8 \\ 5n &= -n + 8 \\ 6n &= 8 \\ \left(\frac{1}{6}\right)(6n) &= \left(\frac{1}{6}\right)(8) \\ n &= \frac{8}{6} \quad n = \frac{4}{3} \end{aligned}$$

YOU AREN'T BY ANY CHANCE GIVING MY GUARDIAN ANGEL. EVENINGS AND WEEKENDS OFF ARE YOU??



$$\begin{aligned} \textcircled{10} \quad 2x - 3 + 7 &= x + 6 + (-2) \\ 2x + 4 &= x + 4 \\ x + 4 &= 4 \\ x &= 0 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad 3n - n + 4 &= -2 - 5n \\ 2n + 4 &= -2 - 5n \\ 7n + 4 &= -2 \\ 7n &= -6 \\ \left(\frac{1}{7}\right)(7n) &= \left(\frac{1}{7}\right)(-6) \\ n &= -\frac{6}{7} \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad 8 - a + 4 &= 3a - 2 - a \\ 12 - a &= 2a - 2 \\ 12 - 3a &= -2 \\ -3a &= -14 \\ \left(-\frac{1}{3}\right)(-3a) &= \left(-\frac{1}{3}\right)(-14) \\ a &= \frac{14}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad 3x - 5x + 2 &= x + 3 \\ -2x + 2 &= x + 3 \\ -3x + 2 &= 3 \\ -3x &= 1 \\ \left(-\frac{1}{3}\right)(-3x) &= \left(-\frac{1}{3}\right)(1) \\ x &= -\frac{1}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad 8 - 2n - 5 &= 3n + 7 - n \\ 3 - 2n &= 2n + 7 \\ 3 - 4n &= 7 \\ -4n &= 4 \\ \left(-\frac{1}{4}\right)(-4n) &= \left(-\frac{1}{4}\right)(4) \\ n &= -\frac{4}{4} \quad n = -1 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad 9 - 3n + 6 &= 8 + n - 1 \\ 15 - 3n &= 7 + n \\ 15 - 4n &= 7 \\ -4n &= -8 \\ \left(-\frac{1}{4}\right)(-4n) &= \left(-\frac{1}{4}\right)(-8) \\ n &= \frac{8}{4} \quad n = 2 \end{aligned}$$

$$\begin{aligned} \textcircled{16} \quad x - 6 &= 8x - 5 - x \\ x - 6 &= 7x - 5 \\ -6x - 6 &= -5 \\ -6x &= 1 \\ \left(-\frac{1}{6}\right)(-6x) &= \left(-\frac{1}{6}\right)(1) \\ x &= -\frac{1}{6} \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad 3a - 5 + a &= a - 7 + 3 \\ 4a - 5 &= a - 4 \\ 3a - 5 &= -4 \\ 3a &= 1 \\ \left(\frac{1}{3}\right)(3a) &= \left(\frac{1}{3}\right)(1) \\ a &= \frac{1}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{18} \quad 2n - 6 - 5n &= 7 - n + 3 \\ -3n - 6 &= 10 - n \\ -2n - 6 &= 10 \\ -2n &= 16 \\ \left(-\frac{1}{2}\right)(-2n) &= \left(-\frac{1}{2}\right)(16) \\ n &= -\frac{16}{2} \quad n = -8 \end{aligned}$$

UNIT 4: ANSWER KEY

Solving Equations

$$19) 12 - 5x + 3 = x - 9 + 2x$$

$$15 - 5x = 3x - 9$$

$$15 - 8x = -9$$

$$-8x = -24$$

$$\left(\frac{-1}{8}\right)(-8x) = \left(\frac{-1}{8}\right)(-24)$$

$$x = \frac{24}{8} \quad x = 3$$

$$20) n - 8 - 5n = 4 - 2n + 2$$

$$-4n - 8 = 6 - 2n$$

$$-2n - 8 = 6$$

$$-2n = 14$$

$$\left(\frac{-1}{2}\right)(-2n) = \left(\frac{-1}{2}\right)(14)$$

$$n = \frac{-14}{2} \quad n = -7$$

$$3n = -9$$

$$\left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(-9)$$

$$n = \frac{-9}{3} \quad n = -3$$

$$3) -5(a+7) = 10$$

$$-5a - 35 = 10$$

$$-5a = 45$$

$$\left(\frac{1}{5}\right)(-5a) = \left(\frac{1}{5}\right)(45)$$

$$a = \frac{-45}{5} \quad a = -9$$

$$4) -4(x-3) = -8$$

$$-4x + 12 = -8$$

$$-4x = -20$$

$$\left(\frac{-1}{4}\right)(-4x) = \left(\frac{-1}{4}\right)(-20)$$

$$x = \frac{20}{4} \quad x = 5$$

$$5) 6(2x-3) = 6$$

$$12x - 18 = 6$$

$$12x = 24$$

$$\left(\frac{1}{12}\right)(12x) = \left(\frac{1}{12}\right)(24)$$

$$x = \frac{24}{12} \quad x = 2$$

$$6) 4(3n-2) = 16$$

$$12n - 8 = 16$$

$$12n = 24$$

continued

$$\left(\frac{1}{12}\right)(12n) = \left(\frac{1}{12}\right)(24)$$

$$n = \frac{24}{12} \quad n = 2$$

$$7) 3(2n-4) = 18 - 4n$$

$$6n - 12 = 18 - 4n$$

$$10n - 12 = 18$$

$$10n = 30$$

$$\left(\frac{1}{10}\right)(10n) = \left(\frac{1}{10}\right)(30)$$

$$n = \frac{30}{10} \quad n = 3$$

4. DISTRIBUTIVE PROPERTY

$$1) 2(x+1) = -4$$

$$2x + 2 = -4$$

$$2x = -6$$

$$\left(\frac{1}{2}\right)(2x) = \left(\frac{1}{2}\right)(-6)$$

$$x = \frac{-6}{2} \quad x = -3$$

$$2) 3(n-4) = -21$$

$$3n - 12 = -21$$

continued

$$8) -2(5x-3) = -8 - 3x$$

$$-10x + 6 = -8 - 3x$$

$$-7x + 6 = -8$$

$$-7x = -14$$

$$\left(\frac{-1}{7}\right)(-7x) = \left(\frac{-1}{7}\right)(-14)$$

$$x = \frac{14}{7} \quad x = 2$$



UNIT 4: ANSWER KEY

Solving Equations

$$\textcircled{9} \quad 5n - 1 = 2(3n - 2)$$

$$5n^{-6n} - 1 = 6n^{-6n} - 4$$

$$-n - 1^{+1} = -4^{+1}$$

$$-n = -3$$

$$n = 3$$

$$\textcircled{10} \quad 3x + 2 = 4(3x + 5)$$

$$3x^{-12x} + 2 = 12x^{-12x} + 20$$

$$-9x + 2^{-2} = 20^{-2}$$

$$-9x = 18$$

$$\left(\frac{1}{9}\right)(-9x) = \left(\frac{1}{9}\right)(18)$$

$$x = \frac{-18}{9} \quad x = -2$$

$$\textcircled{11} \quad a - 6 = -2(a - 5)$$

$$a^{-2a} - 6 = -2a^{-2a} + 10$$

$$3a - 6^{+6} = 10^{+6}$$

$$3a = 16$$

$$\left(\frac{1}{3}\right)(3a) = \left(\frac{1}{3}\right)(16)$$

$$a = \frac{16}{3}$$

$$\textcircled{12} \quad 2n + 5 = 3(2n + 2)$$

$$2n^{-6n} + 5 = 6n^{-6n} + 6$$

$$-4n + 5^5 = 6^{-5}$$

$$-4n = 1$$

$$\left(-\frac{1}{4}\right)(-4n) = \left(-\frac{1}{4}\right)(1)$$

$$x = \frac{1}{4}$$

$$\textcircled{13} \quad 8x - 2(3x + 2) = 0$$

$$8x - 6x - 4 = 0$$

$$2x - 4^{+4} = 0^{+4}$$

$$2x = 4$$

$$\left(\frac{1}{2}\right)(2x) = \left(\frac{1}{2}\right)(4)$$

$$x = \frac{4}{2} \quad x = 2$$

$$\textcircled{14} \quad 3x - 3 = 5 - 2(x + 4)$$

$$3x - 3 = 5 - 2x - 8$$

$$3x^{-2x} - 3 = -3 - 2x^{-2x}$$

$$5x - 3^{+3} = -3^{+3}$$

$$5x = 0$$

$$\left(\frac{1}{5}\right)(5x) = \left(\frac{1}{5}\right)(0)$$

$$x = 0$$

$$\textcircled{15} \quad 2n = 3(2n - 4) - 6$$

$$2n = 6n - 12 - 6$$

$$2n^{-6n} = 6n^{-6n} - 18$$

$$-4n = -18$$

$$\left(-\frac{1}{4}\right)(-4n) = \left(-\frac{1}{4}\right)(-18)$$

$$n = \frac{18}{4} \quad n = \frac{9}{2}$$

$$\textcircled{16} \quad 3(n + 4) = 2(n - 1) - 2$$

$$3n + 12 = 2n - 2 - 2$$

$$3n^{-2n} + 12 = 2n^{-2n} - 4$$

$$n + 12^{-12} = -4^{-12}$$

$$n = -16$$

Solving Equations

$$\textcircled{17} \quad 4(2a-1) = 3 - 2(3-2a)$$

$$8a - 4 = 3 - 6 + 4a$$

$$8a - 4 = -3 + 4a$$

$$4a - 4 = -3$$

$$4a = 1$$

$$\left(\frac{1}{4}\right)(4a) = \left(\frac{1}{4}\right)(1)$$

$$a = \frac{1}{4}$$

$$\textcircled{18} \quad 6(a+2) - 3(3a+1) = 0$$

$$6a + 12 - 9a - 3 = 0$$

$$-3a + 9 = 0$$

$$-3a = -9$$

$$\left(-\frac{1}{3}\right)(-3a) = \left(-\frac{1}{3}\right)(-9)$$

$$a = \frac{9}{3} \quad a = 3$$

$$\textcircled{8} \quad 5x + 6 = -9$$

$$5x = -15$$

$$\left(\frac{1}{5}\right)(5x) = \left(\frac{1}{5}\right)(-15)$$

$$x = \frac{-15}{5} \quad x = -3$$

$$\textcircled{9} \quad -4 = 3a + 2$$

$$-6 = 3a$$

$$\left(\frac{1}{3}\right)(-6) = \left(\frac{1}{3}\right)(3a)$$

$$\frac{-6}{3} = a \quad a = -2$$

$$\textcircled{10} \quad 8 - 2n = 0$$

$$-2n = -8$$

$$\left(-\frac{1}{2}\right)(-2n) = \left(-\frac{1}{2}\right)(-8)$$

$$n = \frac{8}{2} \quad n = 4$$

$$\textcircled{11} \quad 13 - 4x = 9$$

$$-4x = -4$$

$$\left(-\frac{1}{4}\right)(-4x) = \left(-\frac{1}{4}\right)(-4)$$

$$x = \frac{4}{4} \quad x = 1$$

$$\textcircled{12} \quad 4n - 3 = 7$$

$$4n = 10$$

$$\left(\frac{1}{4}\right)(4n) = \left(\frac{1}{4}\right)(10)$$

$$n = \frac{10}{4} \quad n = \frac{5}{2}$$



REVIEW & PRACTICE

$$\textcircled{1} \quad n + 7 = 4$$

$$n = -3$$

$$\textcircled{2} \quad x - 9 = -2$$

$$x = 7$$

$$\textcircled{3} \quad 8 = 10 - n$$

$$-2 = -n$$

$$n = 2$$

$$\textcircled{4} \quad -6 = a - 7$$

$$1 = a$$

$$a = 1$$

$$\textcircled{5} \quad 4 - x = 12$$

$$-x = 8$$

$$x = -8$$

$$\textcircled{6} \quad 9 - n = -1$$

$$-n = -10$$

$$n = 10$$

$$\textcircled{7} \quad 3n - 5 = 7$$

$$3n = 12$$

$$\left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(12)$$

$$n = \frac{12}{3} \quad n = 4$$

$$\textcircled{13} \quad 3n + 4 - n = 7n + 12 - n$$

$$2n + 4 = 6n + 12$$

$$-4n + 4 = 12$$

$$-4n = 8$$

$$\left(-\frac{1}{4}\right)(-4n) = \left(-\frac{1}{4}\right)(8)$$

$$n = \frac{-8}{4} \quad n = -2$$

$$\textcircled{14} \quad 12x - 5 - 3x = 9 + 4x + 1$$

$$9x - 5 = 10 + 4x$$

$$5x - 5 = 10$$

$$5x = 15$$

$$\left(\frac{1}{5}\right)(5x) = \left(\frac{1}{5}\right)(15) \quad x = \frac{15}{5} \quad x = 3$$

UNIT 4: ANSWER KEY

Solving Equations

$$\begin{aligned} (15) \quad 4a + 5 + a &= -8 + 3a + 1 \\ 5a + 5 &= -7 + 3a \\ 2a + 5 &= -7 \\ 2a &= -12 \\ \left(\frac{1}{2}\right)(2a) &= \left(\frac{1}{2}\right)(-12) \\ a &= -\frac{12}{2} \quad a = -6 \end{aligned}$$

$$\begin{aligned} (16) \quad 3n - 6 - 5n &= -9 + n - 2 \\ -2n - 6 &= -11 + n \\ -3n - 6 &= -11 \\ -3n &= -5 \\ \left(-\frac{1}{3}\right)(-3n) &= \left(-\frac{1}{3}\right)(-5) \\ n &= \frac{5}{3} \end{aligned}$$

$$\begin{aligned} (17) \quad 14a - 1 &= a + 7 - 3a + 4 \\ 14a - 1 &= -2a + 11 \\ 16a - 1 &= 11 \\ 16a &= 12 \\ \left(\frac{1}{16}\right)(16a) &= \left(\frac{1}{16}\right)(12) \\ a &= \frac{12}{16} \quad a = \frac{3}{4} \end{aligned}$$

$$\begin{aligned} (18) \quad 2n + 5 &= 6n - 5 + 2n - 8 \\ 2n + 5 &= 8n - 13 \\ -6n + 5 &= -13 \\ -6n &= -18 \\ \left(-\frac{1}{6}\right)(-6n) &= \left(-\frac{1}{6}\right)(-18) \\ n &= \frac{18}{6} \quad n = 3 \end{aligned}$$

$$\begin{aligned} (19) \quad 3(n - 5) &= 9 \\ 3n - 15 &= 9 \\ \text{continued} \end{aligned}$$

$$\begin{aligned} 3n &= 24 \\ \left(\frac{1}{3}\right)(3n) &= \left(\frac{1}{3}\right)(24) \\ n &= \frac{24}{3} \quad n = 8 \end{aligned}$$

$$\begin{aligned} (20) \quad -2(x - 4) &= 10 \\ -2x + 8 &= 10 \\ -2x &= 2 \\ \left(-\frac{1}{2}\right)(-2x) &= \left(-\frac{1}{2}\right)(2) \\ x &= -\frac{2}{2} \quad x = -1 \end{aligned}$$

$$\begin{aligned} (21) \quad 3n - 3 &= 4(2n + 3) \\ 3n - 3 &= 8n + 12 \\ -5n - 3 &= 12 \\ -5n &= 15 \\ \left(-\frac{1}{5}\right)(-5n) &= \left(-\frac{1}{5}\right)(15) \\ n &= -\frac{15}{5} \quad n = -3 \end{aligned}$$

$$\begin{aligned} (22) \quad 2a + 6 &= -4(3a + 1) \\ 2a + 6 &= -12a - 4 \\ 14a + 6 &= -4 \\ 14a &= -10 \\ \left(\frac{1}{14}\right)(14a) &= \left(\frac{1}{14}\right)(-10) \\ a &= -\frac{10}{14} \quad a = -\frac{5}{7} \end{aligned}$$

$$\begin{aligned} (23) \quad 4x + 6 &= x - 3(2x + 1) \\ 4x + 6 &= x - 6x - 3 \\ 4x + 6 &= -5x - 3 \\ \text{continued} \end{aligned}$$

YOU DONT UNDERSTAND, ZIGGY. WE DONT WANT YOU TO PLAY THIRD BASE... WE WANT YOU TO BE THIRD BASE!



$$\begin{aligned} 9x + 6 &= -3 \\ 9x &= -9 \\ \left(\frac{1}{9}\right)(9x) &= \left(\frac{1}{9}\right)(-9) \\ x &= -\frac{9}{9} \quad x = -1 \end{aligned}$$

$$\begin{aligned} (24) \quad 2n + 5 &= 3n - 2(4n + 2) \\ 2n + 5 &= 3n - 8n - 4 \\ 2n + 5 &= -5n - 4 \\ 7n + 5 &= -4 \\ 7n &= -9 \\ \left(\frac{1}{7}\right)(7n) &= \left(\frac{1}{7}\right)(-9) \\ n &= -\frac{9}{7} \end{aligned}$$



UNIT 4: ANSWER KEY

Solving Equations

$$\begin{aligned} 25) \quad 6(2x+1) &= 3(4-x) \\ 12x+6 &= 12-3x \\ 15x+6 &= 12 \end{aligned}$$

$$15x = 6$$

$$\left(\frac{1}{15}\right)(15x) = \left(\frac{1}{15}\right)(6)$$

$$x = \frac{6}{15} \quad x = \frac{2}{5}$$

$$26) \quad 2(n-1) - 3(2n+2) = 3$$

$$2n-2-6n-6=3$$

$$-4n-8=3$$

$$-4n = 11$$

$$\left(\frac{1}{4}\right)(-4n) = \left(\frac{1}{4}\right)(11)$$

$$n = -\frac{11}{4}$$

$$27) \quad 4(2x+3) - 2(x-5) = 0$$

$$8x+12-2x+10=0$$

$$6x+22=0$$

$$6x = -22$$

$$\left(\frac{1}{6}\right)(6x) = \left(\frac{1}{6}\right)(-22)$$

$$x = -\frac{22}{6} \quad x = -\frac{11}{3}$$

$$28) \quad 3a - 2(4a-1) - a = 3(a+1)$$

$$3a - 8a + 2 - a = 3a + 3$$

$$-6a + 2 = 3a + 3$$

$$-9a + 2 = 3$$

continued

$$-9a = 1$$

$$\left(\frac{1}{9}\right)(-9a) = \left(\frac{1}{9}\right)(1)$$

$$a = \frac{1}{9}$$

$$29) \quad x - 2(x-5) + 3x = 4(2x-2)$$

$$x - 2x + 10 + 3x = 8x - 8$$

$$2x + 10 = 8x - 8$$

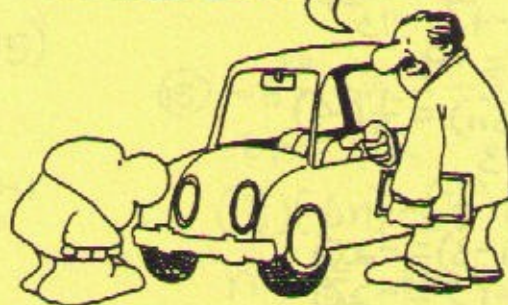
$$-6x + 10 = -8$$

$$-6x = -18$$

$$\left(\frac{1}{6}\right)(-6x) = \left(\frac{1}{6}\right)(-18)$$

$$x = \frac{18}{6} \quad x = 3$$

... AND IT DOESN'T HAVE ONE OF THOSE EXPENSIVE AIR BAGS... JUST THIS LIGHT THAT COMES ON AND SAYS "SAYONARA!"



$$30) \quad 3n - 2(n-1) = n - 3(2n+4)$$

$$3n - 2n + 2 = n - 6n - 12$$

$$n + 2 = -5n - 12$$

$$6n + 2 = -12$$

$$6n = -14$$

$$\left(\frac{1}{6}\right)(6n) = \left(\frac{1}{6}\right)(-14)$$

$$n = -\frac{14}{6} \quad n = -\frac{7}{3}$$

UNIT 4: ANSWER KEY

Solving Equations

PRACTICE TEST #1

$$\textcircled{1} \quad x - 5^{+5} = 12^{+5}$$

$$x = 17$$

$$\textcircled{2} \quad 2n - 7^{+7} = -11^{+7}$$

$$2n = -4$$

$$\frac{1}{2}(2n) = \frac{1}{2}(-4)$$

$$n = -2$$

$$\textcircled{3} \quad 3a - 5^{+5} = -17^{+5}$$

$$3a = -12$$

$$\frac{1}{3}(3a) = \frac{1}{3}(-12)$$

$$a = -4$$

$$\textcircled{4} \quad 3n - 4 = 2n - 3 + 4n - 10$$

$$3n - 4 = 6n - 13$$

$$-3n - 4 = -13$$

$$-3n = -9$$

$$-\frac{1}{3}(-3n) = -\frac{1}{3}(-9)$$

$$n = 3$$

$$\textcircled{5} \quad 4(a - 3) = -20$$

$$4a - 12 = -20$$

$$4a = -8$$

$$\frac{1}{4}(4a) = \frac{1}{4}(-8)$$

$$a = -2$$

$$\textcircled{6} \quad 3(4n - 1) - 2(n + 5) = -6$$

$$12n - 3 - 2n - 10 = -6$$

$$10n - 13 = -6$$

$$10n = 7$$

$$\frac{1}{10}(10n) = \frac{1}{10}(7)$$

$$n = \frac{7}{10}$$

PRACTICE TEST #2

$$\textcircled{1} \quad a + 7^{-7} = -4^{-7}$$

$$a = -11$$

$$\textcircled{2} \quad 3x - 4^{+4} = -22^{+4}$$

$$3x = -18$$

$$\frac{1}{3}(3x) = \frac{1}{3}(-18)$$

$$x = -6$$

$$\textcircled{3} \quad 4n - 7^{+7} = 17^{+7}$$

$$4n = 24$$

$$\frac{1}{4}(4n) = \frac{1}{4}(24)$$

$$n = 6$$

$$\textcircled{4} \quad 2a - 3 = 3a - 5 - 7a - 10$$

$$2a - 3 = -4a - 15$$

$$6a - 3 = -15$$

$$6a = -12$$

$$\frac{1}{6}(6a) = \frac{1}{6}(-12)$$

$$a = -2$$

$$\textcircled{5} \quad 3(2n - 1) = 18$$

$$6n - 3 = 18$$

$$6n = 21$$

$$\frac{1}{6}(6n) = \frac{1}{6}(21)$$

$$n = \frac{21}{6} = \frac{7}{2}$$

$$\textcircled{6} \quad 2(4x - 3) - 3(x - 5) = 7$$

$$8x - 6 - 3x + 15 = 7$$

$$5x + 9 = 7$$

$$5x = -2$$

$$\frac{1}{5}(5x) = \frac{1}{5}(-2)$$

$$x = -\frac{2}{5}$$

Problem Solving

1. INTEGER PROBLEMS

$$\textcircled{1} \quad n - 11^{+11} = -5^{+11}$$

$$n = 6$$

$$\textcircled{2} \quad n - 9^{+9} = 0^{+9}$$

$$n = 9$$

$$\textcircled{3} \quad n + 7^{-7} = 4^{-7}$$

$$n = -3$$

$$\textcircled{4} \quad n + (-2) = 14$$

$$n - 2^{+2} = 14^{+2}$$

$$n = 16$$

$$\textcircled{5} \quad 12^{+6} = n - 6^{+6}$$

$$18 = n$$

$$n = 18$$

$$\textcircled{6} \quad -3^{-9} = n + 9^{-9}$$

$$-12 = n$$

$$n = -12$$

$$\textcircled{7} \quad 2^{+6} = 4n - 6^{+6}$$

$$8 = 4n$$

$$\left(\frac{1}{4}\right)(8) = \left(\frac{1}{4}\right)(4n)$$

$$\frac{8}{4} = n \quad n = 2$$

$$\textcircled{8} \quad -5^{-4} = 3n + 4^{-4}$$

$$-9 = 3n$$

$$\left(\frac{1}{3}\right)(-9) = \left(\frac{1}{3}\right)(3n)$$

$$\frac{-9}{3} = n \quad n = -3$$

$$\textcircled{9} \quad 2n - 7^{+7} = 11^{+7}$$

$$2n = 18$$

$$\left(\frac{1}{2}\right)(2n) = \left(\frac{1}{2}\right)(18)$$

$$n = \frac{18}{2} \quad n = 9$$

$$\textcircled{10} \quad 4n + (-10) = 18$$

$$4n - 10^{+10} = 18^{+10}$$

$$4n = 28$$

$$\left(\frac{1}{4}\right)(4n) = \left(\frac{1}{4}\right)(28)$$

$$n = \frac{28}{4} \quad n = 7$$

$$\textcircled{11} \quad 9^{-9} - 3n = -6^{-9}$$

$$-3n = -15$$

$$\left(-\frac{1}{3}\right)(-3n) = \left(-\frac{1}{3}\right)(-15)$$

$$n = \frac{15}{3} \quad n = 5$$

$$\textcircled{12} \quad -4^{+4} + 2n = -16^{+4}$$

$$2n = -12$$

$$\left(\frac{1}{2}\right)(2n) = \left(\frac{1}{2}\right)(-12)$$

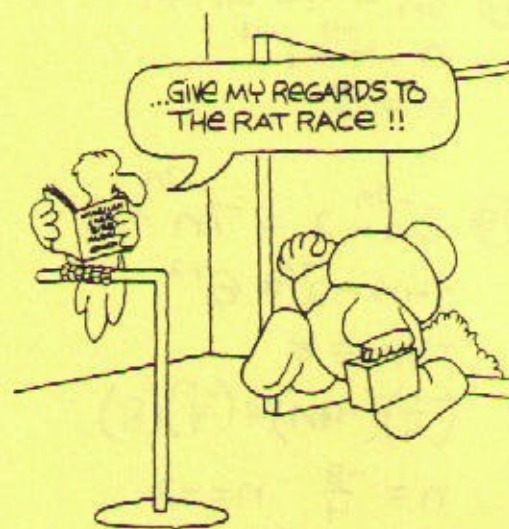
$$n = \frac{-12}{2} \quad n = -6$$

$$\textcircled{13} \quad 14^{+6} = 5n - 6^{+6}$$

$$20 = 5n$$

$$\left(\frac{1}{5}\right)(20) = \left(\frac{1}{5}\right)(5n)$$

$$\frac{20}{5} = n \quad n = 4$$



$$\textcircled{14} \quad 18^{-18} - 4n = 6^{-18}$$

$$-4n = -12$$

$$\left(-\frac{1}{4}\right)(-4n) = \left(-\frac{1}{4}\right)(-12)$$

$$n = \frac{12}{4} \quad n = 3$$

$$\textcircled{15} \quad -8^{+8} - 6n = -20^{+8}$$

$$-6n = -12$$

$$\left(-\frac{1}{6}\right)(-6n) = \left(-\frac{1}{6}\right)(-12)$$

$$n = \frac{12}{6} \quad n = 2$$

$$\textcircled{16} \quad -3^{+3} + 4n = -11^{+3}$$

$$4n = -8$$

$$\left(\frac{1}{4}\right)(4n) = \left(\frac{1}{4}\right)(-8)$$

$$n = \frac{-8}{4}$$

$$n = -2$$

UNIT 5: ANSWER KEY

Problem Solving

$$\begin{aligned} \textcircled{17} \quad 3n^{-2n} - 4 &= 2n^{-2n} + 1 \\ n - 4^{+4} &= 1^{+4} \\ n &= 5 \end{aligned}$$

$$\begin{aligned} \textcircled{18} \quad 3n^{-7n} - 2 &= 7n^{-7n} + 6 \\ -4n - 2^{+2} &= 6^{+2} \\ -4n &= 8 \\ \left(\frac{-1}{4}\right)(-4n) &= \left(\frac{-1}{4}\right)(8) \\ n &= \frac{-8}{4} \quad n = -2 \end{aligned}$$

$$\begin{aligned} \textcircled{19} \quad 8 - 3n^{-6n} &= 6n^{-6n} - 1 \\ 8^{-8} - 9n &= -1^{-8} \\ -9n &= -9 \\ \left(\frac{-1}{9}\right)(-9n) &= \left(\frac{-1}{9}\right)(-9) \\ n &= \frac{9}{9} \quad n = 1 \end{aligned}$$

$$\begin{aligned} \textcircled{20} \quad n^{-3n} + 7 &= 3n^{-3n} + 19 \\ -2n + 7^{-7} &= 19^{-7} \\ -2n &= 12 \\ \left(\frac{-1}{2}\right)(-2n) &= \left(\frac{-1}{2}\right)(12) \\ n &= \frac{-12}{2} \quad n = -6 \end{aligned}$$



THINGS TO DO TODAY

1. FORGET YOUR TROUBLES
2. COME ON
3. GET HAPPY

2. USING PARENTHESIS

$$\begin{aligned} \textcircled{1} \quad 3n + 4^{-4} &= 31^{-4} \\ 3n &= 27 \\ \left(\frac{1}{3}\right)(3n) &= \left(\frac{1}{3}\right)(27) \\ n &= \frac{27}{3} \quad n = 9 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 2n + 6^{-6} &= -2^{-6} \\ 2n &= -8 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(-8) \\ n &= \frac{-8}{2} \quad n = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad 2n - 2^{+2} &= -10^{+2} \\ 2n &= -8 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(-8) \\ n &= \frac{-8}{2} \quad n = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad n - 11^{+11} &= -5^{+11} \\ n &= 6 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad 5n - (n-3) &= 27 \\ 5n - n + 3 &= 27 \\ 4n + 3^{-3} &= 27^{-3} \\ 4n &= 24 \\ \left(\frac{1}{4}\right)(4n) &= \left(\frac{1}{4}\right)(24) \\ n &= \frac{24}{4} \quad n = 6 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad 4n - (n+3) &= 18 \\ 4n - n - 3 &= 18 \\ \text{continued} \end{aligned}$$

$$\begin{aligned} 3n - 3^{+3} &= 18^{+3} \\ 3n &= 21 \\ \left(\frac{1}{3}\right)(3n) &= \left(\frac{1}{3}\right)(21) \\ n &= \frac{21}{3} \quad n = 7 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad 3n - (2n-2) &= 14 \\ 3n - 2n + 2 &= 14 \\ n + 2^{-2} &= 14^{-2} \\ n &= 12 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad 4n - (2n+5) &= -11 \\ 4n - 2n - 5 &= -11 \\ 2n - 5^{+5} &= -11^{+5} \\ 2n &= -6 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(-6) \\ n &= \frac{-6}{2} \quad n = -3 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad (n-2) - (2n+3) &= 7 \\ n - 2 - 2n - 3 &= 7 \\ -n - 5^{+5} &= 7^{+5} \\ -n &= 12 \\ n &= -12 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad (3n-4) - (n+3) &= -5 \\ 3n - 4 - n - 3 &= -5 \\ 2n - 7^{-7} &= -5^{-7} \\ 2n &= 2 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(2) \\ n &= \frac{2}{2} \quad n = 1 \end{aligned}$$

continued

Problem Solving

$$\begin{aligned} \textcircled{11} \quad 3^{-2n} + 2 &= 2^{-2n} + 8 \\ n + 2^{-2} &= 8^{-2} \\ n &= 6 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad 4n^{-6} - 6 &= 2n^{-6} + 4 \\ 2n^{-6} - 6^{+6} &= 4^{+6} \\ 2n &= 10 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(10) \\ n &= \frac{10}{2} \quad n = 5 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad (3n+2) - (2n-4) &= 4n \\ 3n+2-2n+4 &= 4n \\ n+6 &= 4n \\ 6 &= 3n \\ \left(\frac{1}{3}\right)(6) &= \left(\frac{1}{3}\right)(3n) \\ \frac{6}{3} &= n \quad n = 2 \end{aligned}$$



$$\begin{aligned} \textcircled{14} \quad (3n-2) - (n+6) &= 4n \\ 3n-2-n-6 &= 4n \\ 2n^{-2n} - 8 &= 4n^{-2n} \\ -8 &= 2n \\ \left(\frac{1}{2}\right)(-8) &= \left(\frac{1}{2}\right)(2n) \\ \frac{-8}{2} &= n \quad n = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad 3n+2 &= (n+3) - (2n-7) \\ 3n+2 &= n+3-2n+7 \\ 3n+2 &= -n+10 \\ 4n+2^{-2} &= 10^{-2} \\ 4n &= 8 \\ \left(\frac{1}{4}\right)(4n) &= \left(\frac{1}{4}\right)(8) \\ n &= \frac{8}{4} \quad n = 2 \end{aligned}$$



$$\begin{aligned} \textcircled{7} \quad 8^{-3} - 3n &= 23^{-8} \\ -3n &= 15 \\ \left(-\frac{1}{3}\right)(-3n) &= \left(-\frac{1}{3}\right)(15) \\ n &= \frac{-15}{3} \quad n = -5 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad -6^{+6} + 2n &= 12^{+6} \\ 2n &= 18 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(18) \\ n &= \frac{18}{2} \quad n = 9 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad 5n - (n+4) &= -8 \\ 5n - n - 4 &= -8 \\ 4n - 4^{+4} &= -8^{+4} \\ 4n &= -4 \\ \left(\frac{1}{4}\right)(4n) &= \left(\frac{1}{4}\right)(-4) \\ n &= \frac{-4}{4} \\ n &= -1 \end{aligned}$$

REVIEW & PRACTICE

$$\begin{aligned} \textcircled{1} \quad n - 5^{+5} &= 3^{+5} \\ n &= 8 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad n + 3^{-3} &= -7^{-3} \\ n &= -10 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad 9^{+7} &= n - 7^{+7} \\ 16 &= n \quad n = 16 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad -6^{-8} &= n + 8^{-8} \\ -14 &= n \quad n = -14 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad 4n + 7^{-7} &= 23^{-7} \\ 4n &= 16 \\ \left(\frac{1}{4}\right)(4n) &= \left(\frac{1}{4}\right)(16) \\ n &= \frac{16}{4} \quad n = 4 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad 2n - 9^{+9} &= -11^{+9} \\ 2n &= -2 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(-2) \\ n &= \frac{-2}{2} \quad n = -1 \end{aligned}$$

UNIT 5: ANSWER KEY

Problem Solving

$$\begin{aligned} \textcircled{10} \quad 2n - (n-5) &= -4 \\ 2n - n + 5 &= -4 \\ n + 5 &= -4 \\ n &= -9 \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad (n+3) - (3n-2) &= 7 \\ n+3-3n+2 &= 7 \\ -2n+5 &= 7 \\ -2n &= 2 \\ \left(-\frac{1}{2}\right)(-2n) &= \left(-\frac{1}{2}\right)(2) \\ n &= -1 \end{aligned}$$

$$\begin{aligned} \textcircled{12} \quad (2n-5) - (4n+2) &= 11 \\ 2n-5-4n-2 &= 11 \\ -2n-7 &= 11 \\ -2n &= 18 \\ \left(-\frac{1}{2}\right)(-2n) &= \left(-\frac{1}{2}\right)(18) \\ n &= -9 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad 3n - 11 &= 2n + 1 \\ n - 11 &= 1 \\ n &= 12 \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad 4n + 5 &= 2n + 3 \\ 2n + 5 &= 3 \\ 2n &= -2 \\ \left(\frac{1}{2}\right)(2n) &= \left(\frac{1}{2}\right)(-2) \\ n &= -1 \end{aligned}$$

$$\begin{aligned} \textcircled{15} \quad (2n+2) - (3n-5) &= n-7 \\ 2n+2-3n+5 &= n-7 \\ -n+7 &= n-7 \\ -2n+7 &= -7 \\ -2n &= -14 \\ \left(-\frac{1}{2}\right)(-2n) &= \left(-\frac{1}{2}\right)(-14) \\ n &= 7 \end{aligned}$$



$$\begin{aligned} \textcircled{16} \quad (6n+10) - (n+2) &= n-4 \\ 6n+10-n-2 &= n-4 \\ 5n+8 &= n-4 \\ 4n+8 &= -4 \\ 4n &= -12 \\ \left(\frac{1}{4}\right)(4n) &= \left(\frac{1}{4}\right)(-12) \\ n &= -3 \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad (2n+4) - (n+5) &= 2n-2 \\ 2n+4-n-5 &= 2n-2 \\ n-1 &= 2n-2 \\ -n-1 &= -2 \\ -n &= -1 \\ n &= 1 \end{aligned}$$

Problem Solving

PRACTICE TEST #1

$$\textcircled{1} \quad n - 8^{+8} = -5^{+8}$$

$$n = 3$$

$$\textcircled{2} \quad 2n + 3^{-3} = -11^{-3}$$

$$2n = -14$$

$$\frac{1}{2}(2n) = \frac{1}{2}(-14)$$

$$n = -7$$

$$\textcircled{3} \quad 12^{-12} - 3n = -3^{-12}$$

$$-3n = -15$$

$$-\frac{1}{3}(-3n) = -\frac{1}{3}(-15)$$

$$n = 5$$

$$\textcircled{4} \quad 4n + (2n + 5) = 35$$

$$6n + 5^{-5} = 35^{-5}$$

$$6n = 30$$

$$\frac{1}{6}(6n) = \frac{1}{6}(30)$$

$$n = 5$$

$$\textcircled{5} \quad (n+4) - (3n-2) = 12$$

$$n+4-3n+2=12$$

$$-2n+6^{-6} = 12^{-6}$$

$$-2n = 6$$

$$-\frac{1}{2}(-2n) = -\frac{1}{2}(6)$$

$$n = -3$$

$$\textcircled{6} \quad 5n - (2n+4) = 7n-12$$

$$5n-2n-4 = 7n-12$$

$$3n^{-7n} - 4 = 7n^{-7n} - 12$$

$$-4n - 4^{+4} = -12^{+4}$$

$$-4n = -8$$

$$-\frac{1}{4}(-4n) = -\frac{1}{4}(-8) \quad n = 2$$

PRACTICE TEST #2

$$\textcircled{1} \quad n + 6^{-6} = 2^{-6}$$

$$n = -4$$

$$\textcircled{2} \quad 3n - 8^{+8} = 7^{+8}$$

$$3n = 15$$

$$\frac{1}{3}(3n) = \frac{1}{3}(15)$$

$$n = 5$$

$$\textcircled{3} \quad -4^{+4} + 2n = 10^{+4}$$

$$2n = 14$$

$$\frac{1}{2}(2n) = \frac{1}{2}(14)$$

$$n = 7$$

$$\textcircled{4} \quad 2n - (3n-5) = 9$$

$$2n-3n+5 = 9$$

$$-n+5^{-5} = 9^{-5}$$

$$-n = 4$$

$$n = -4$$

$$\textcircled{5} \quad (3n-2) - (n+4) = -10$$

$$3n-2-n-4 = -10$$

$$2n-6^{+6} = -10^{+6}$$

$$2n = -4$$

$$\frac{1}{2}(2n) = \frac{1}{2}(-4)$$

$$n = -2$$

$$\textcircled{6} \quad 2n - (3n-3) = n+13$$

$$2n-3n+3 = n+13$$

$$-n^{+3} + 3 = n^{+3} + 13$$

$$-2n+3^{-3} = 13^{-3}$$

$$-2n = 10$$

$$-\frac{1}{2}(-2n) = -\frac{1}{2}(10) \quad n = -5$$

UNITS 1-5: ANSWER KEY

Cumulative Review

REVIEW & PRACTICE

① $(-6) \div (-3) = 2$

② $(+8) + (-4) = 4$

③ $(-7) - (-5)$
 $(-7) + (5) = -2$

④ $(+12) \times (-4) = -48$

⑤ $(-8) - (-9)$
 $(-8) + (9) = 1$

⑥ $(-4) \times (-3) = 12$

⑦ $(-7) + (+6) = -1$

⑧ $(+8) - (-4)$
 $(+8) + (+4) = 12$

⑨ $(-3) + (-7) - (-6) - (+8) + (-4)$
 $(-3) + (-7) + (+6) + (-8) + (-4)$
 $(+6) + (-22) = -16$

⑩ $(-2)(-1)(-1)(+2)(+3) = -12$

⑪ $(-1)^5 = -1$ ⑫ $-5^3 = -125$

⑬ $-4^0 = -1$ ⑭ $-5^2 = -25$

⑮ $-2^2 = -4$ ⑯ $(-2)^4 = 16$

⑰ $(-3)^3 = -27$ ⑱ $-6^2 = -36$

⑲ $(-1)^4 = 1$

⑳ $(-2) + (-3)(-4) - (-2)$
 $(-2) + (12) - (-2)$
 $(-2) + (12) + (2) = 12$

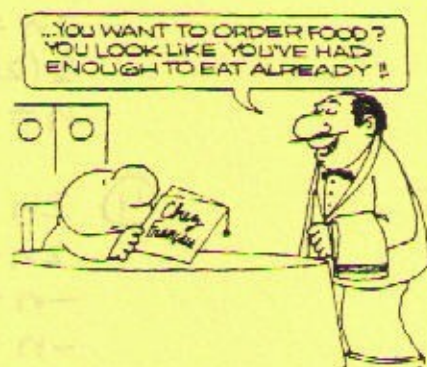
㉑ $(-5) - (-4) + (-12) \div (3)$
 $(-5) - (-4) + (-4)$
 $(-5) + (4) + (-4)$
 $(4) + (-9) = -5$

㉒ $(-2)^3 - (-1)^0$
 $(-8) - (1)$
 $(-8) + (-1) = -9$

㉓ $(-3)^2 - (-2)(-1)^+$
 $(9) - (-2)(1)$
 $(9) - (-2)$
 $(9) + (+2) = 11$

㉔ $a - b + c$
 $(-3) - (-1) + (2)$
 $(-3) + (+1) + (+2) = 0$

㉕ $2a - 3b$
 $2(-3) - 3(-1)$
 $(-6) - (-3)$
 $(-6) + (+3) = -3$



㉖ $a^2 + ab$
 $(-3)^2 + (-3)(-1)$
 $(9) + (3) = 12$

㉗ $3c - 2bc$
 $3(2) - 2(-1)(2)$
 $(6) - (-4)$
 $(6) + (4) = 10$

UNITS 1-5: ANSWER KEY

Cumulative Review

$$\begin{aligned} (28) \quad & 3(a+b) \\ & 3(-3)+(-1) \\ & 3(-4) = -12 \end{aligned}$$

$$\begin{aligned} (29) \quad & 2ab^2 - c \\ & 2(-3)(-1)^2 - (-2) \\ & 2(-3)(1) - (-2) \\ & (-6) - (-2) \\ & (-6) + (-2) = -8 \end{aligned}$$

$$\begin{aligned} (30) \quad & c(a+b)^2 \\ & (2)((-3)+(-1))^2 \\ & (2)(-4)^2 \\ & (2)(16) = 32 \end{aligned}$$

$$\begin{aligned} (31) \quad & 3b^3 - 2a^2 \\ & 3(-1)^3 - 2(-3)^2 \\ & 3(-1) - 2(9) \\ & (-3) - (18) \\ & (-3) + (-18) = -21 \end{aligned}$$

$$\begin{aligned} (32) \quad & n - 8 = 15 \\ & n = 23 \end{aligned}$$

$$\begin{aligned} (33) \quad & 2x - 3 = 13 \\ & 2x = 16 \\ & \left(\frac{1}{2}\right)(2x) = \left(\frac{1}{2}\right)(16) \\ & x = 8 \end{aligned}$$

$$\begin{aligned} (34) \quad & 12 - 3a = -3 \\ & -3a = -15 \\ & \left(-\frac{1}{3}\right)(-3a) = \left(-\frac{1}{3}\right)(-15) \\ & a = 5 \end{aligned}$$

$$\begin{aligned} (35) \quad & 4 - 2n = 10 \\ & -2n = 6 \\ & \left(-\frac{1}{2}\right)(-2n) = \left(-\frac{1}{2}\right)(6) \\ & n = -3 \end{aligned}$$

$$\begin{aligned} (36) \quad & 4x - 3 = 2 - 3x + 6x \\ & 4x - 3 = 2 + 3x \\ & x - 3 = 2 \\ & x = 5 \end{aligned}$$

$$\begin{aligned} (37) \quad & -4 - 2n + 7 = -5n - 9 \\ & 3 - 2n = -5n - 9 \\ & 3 + 3n = -9 \\ & 3n = -12 \\ & \left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(-12) \\ & n = -4 \end{aligned}$$

$$\begin{aligned} (38) \quad & 2(3n - 1) = 22 \\ & 6n - 2 = 22 \\ & 6n = 24 \\ & \left(\frac{1}{6}\right)(6n) = \left(\frac{1}{6}\right)(24) \\ & n = 4 \end{aligned}$$

$$\begin{aligned} (39) \quad & 3(a+4) - 3 = 2(3a-3) \\ & 3a + 12 - 3 = 6a - 6 \\ & 3a + 9 = 6a - 6 \\ & -3a + 9 = -6 \\ & -3a = -15 \end{aligned}$$

$$\begin{aligned} & \left(-\frac{1}{3}\right)(-3a) = \left(-\frac{1}{3}\right)(-15) \\ & a = 5 \end{aligned}$$

$$\begin{aligned} (40) \quad & 12 - 2(n-3) = -4n \\ & 12 - 2n + 6 = -4n \\ & 18 - 2n = -4n \\ & 18 = -2n \\ & \left(\frac{1}{2}\right)(18) = \left(\frac{1}{2}\right)(-2n) \\ & 9 = -n \\ & n = -9 \end{aligned}$$

$$\begin{aligned} (41) \quad & 3n - 2(5n+2) = -2n - 1 \\ & 3n - 10n - 4 = -2n - 1 \\ & -7n - 4 = -2n - 1 \\ & -5n - 4 = -1 \\ & -5n = 3 \end{aligned}$$

$$\begin{aligned} & \left(-\frac{1}{5}\right)(-5n) = \left(-\frac{1}{5}\right)(3) \\ & n = -\frac{3}{5} \end{aligned}$$

$$\begin{aligned} (42) \quad & n - 7 = -2 \\ & n = 5 \end{aligned}$$

Cumulative Review

$$\textcircled{43} \quad 3n + 4^{-4} = -11^{-4}$$

$$3n = -15$$

$$\left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(-15)$$

$$n = -5$$

$$4n + 2 - 2n + 3 = 3n$$

$$2n + 5 = 3n$$

$$5 = n$$

$$n = 5$$

$$\textcircled{44} \quad 6n - (n+2) = 13$$

$$6n - n - 2 = 13$$

$$5n - 2 = 13$$

$$5n = 15$$

$$\left(\frac{1}{5}\right)(5n) = \left(\frac{1}{5}\right)(15)$$

$$n = 3$$

$$\textcircled{45} \quad (n+4) - (2n-2) = 10$$

$$n+4-2n+2=10$$

$$-n+6=10$$

$$-n=4$$

$$n=-4$$

$$\textcircled{46} \quad (n+3) - (3n+4) = n+5$$

$$n+3-3n-4=n+5$$

$$-2n-1=n+5$$

$$-3n-1=5$$

$$-3n=6$$

$$\left(\frac{-1}{3}\right)(-3n) = \left(\frac{-1}{3}\right)(6)$$

$$n = -2$$

$$\textcircled{47} \quad (4n+2) - (2n-3) = 3n$$

PRACTICE TEST

$$\textcircled{1} \quad (-3) - (-8) \quad \textcircled{2} \quad (-3) \times (-2) \times (-1)$$

$$(-3) + (8) = 5 \quad -6$$

$$\textcircled{3} \quad (-5) + (-2) - (-7) - (+4) - (-2)$$

$$(-5) + (-2) + (+7) + (-4) + (+2)$$

$$(+9) + (-11) = -2$$

$$\textcircled{4} \quad (-4) - (-8) + (-3) - (+7) - (-4)$$

$$(-4) + (+8) + (-3) + (-7) + (+4)$$

$$(+12) + (-14) = -2$$

$$\textcircled{5} \quad (-3)^2 = 9 \quad \textcircled{6} \quad -2^4 = -16$$

$$\textcircled{7} \quad (-3) - \boxed{(-4) \times (+3)}$$

$$(-3) - (-12)$$

$$(-3) + (+12) = 9$$

$$\textcircled{8} \quad (-1)^3 - (-2)^2 - 3^2$$

$$(-1) - (4) - 9$$

$$(-1) + (-4) + (-9) = -14$$

$$\textcircled{9} \quad (-2)(-3) - (-4) \div (-2)^2$$

$$\boxed{(-2)(-3)} - \boxed{(-4) \div (4)}$$

Cumulative Review

$$(6) - (-1)$$

$$(6) + (+1) = 7$$

⑩ $3x - 2y z$

$$3(2) - 2(-2)(-3)$$

$$(6) - (12)$$

$$(6) + (-12) = -6$$

⑪ $2x y^2 - 3z$

$$2(2)(-2)^2 - 3(-3)$$

$$2(2)(4) - 3(-3)$$

$$(16) - (-9)$$

$$(16) + (+9) = 25$$

⑫ $3(y + z) + 2x$

$$3(-2) + (-3) + 2(2)$$

$$3(-5) + 2(2)$$

$$(-15) + (4) = -11$$

⑬ $x y z - y^3$

$$(2)(-2)(-3) - (-2)^3$$

$$(2)(-2)(-3) - (-8)$$

$$(12) - (-8)$$

$$(12) + (+8) = 20$$

⑭ $14 - 3n^{-n} = n^{-n} + 2$

$$14^{-14} - 4n = 2^{-14}$$

$$-4n = -12$$

$$\left(-\frac{1}{4}\right)(-4n) = \left(-\frac{1}{4}\right)(-12)$$

$$n = 3$$

⑮ $2(x-3) = -10$

$$2x - 6^{+6} = -10^{+6}$$

$$2x = -4$$

$$\left(\frac{1}{2}\right)(2x) = \left(\frac{1}{2}\right)(-4)$$

$$x = -2$$

⑯ $a - 3(a-4) = -5a + 3$

$$a - 3a + 12 = -5a + 3$$

$$-2a^{+5a} + 12 = -5a^{+5a} + 3$$

$$3a^{-12} = 3^{-12}$$

$$3a = -9$$

$$\left(\frac{1}{3}\right)(3a) = \left(\frac{1}{3}\right)(-9)$$

$$a = -3$$

⑰ $3(2n-1) - (n+4) = n+1$

$$6n - 3 - n - 4 = n + 1$$

$$5n^{-n} - 7 = n^{-n} + 1$$

$$4n^{-7} = 1^{+7}$$

$$4n = 8$$

$$\left(\frac{1}{4}\right)(4n) = \left(\frac{1}{4}\right)(8)$$

$$n = 2$$

⑱ $2n - 4^{+4} = 8^{+4}$

$$2n = 12$$

$$\left(\frac{1}{2}\right)(2n) = \left(\frac{1}{2}\right)(12)$$

$$n = 6$$

⑲ $(n-3) - (4n+2) = 1$

$$n-3-4n-2=1$$

$$-3n-5^{+5} = 1^{+5}$$

$$-3n = 6$$

$$\left(\frac{1}{3}\right)(-3n) = \left(\frac{1}{3}\right)(6)$$

$$n = -2$$



⑳ $(2n+4) - (5n-3) = 2n-8$

$$2n+4-5n+3=2n-8$$

$$-3n^{-2n} + 7 = 2n^{-2n} - 8$$

$$-5n+7^{-7} = -8^{-7}$$

$$-5n = -15$$

$$\left(\frac{1}{5}\right)(-5n) = \left(\frac{1}{5}\right)(-15)$$

$$n = 3$$

ALGEBRA SKILLS: ANSWER KEY

Cumulative Review

REVIEW & PRACTICE

$$\textcircled{1} (-8) \div (-4) = 2$$

$$\textcircled{2} (+9) + (-5) = 4$$

$$\textcircled{3} (-3) - (-12)$$

$$(-3) + (+12) = 9$$

$$\textcircled{4} (+7) \times (-5) = -35$$

$$\textcircled{5} (-9) - (-6)$$

$$(-9) + (+6) = -3$$

$$\textcircled{6} (-6) \times (-5) = 30$$

$$\textcircled{7} (-8) + (+5) = -3$$

$$\textcircled{8} (+7) - (-9)$$

$$(+7) + (+9) = 16$$

$$\textcircled{9} (-2) + (-5) - (-4) - (+7) + (-2)$$

$$(-2) + (-5) + (+4) + (-7) + (-2)$$

$$(+4) + (-16) = -12$$

$$\textcircled{10} (-3)(-2)(-2)(+1)(+4) = -48$$

$$\textcircled{11} (-2)^3 = -8$$

$$\textcircled{12} -5^2 = -25$$

$$\textcircled{13} -3^0 = -1$$

$$\textcircled{14} (-2)^4 = 16$$

$$\textcircled{15} (-1)^6 = 1$$

$$\textcircled{16} -3^4 = -81$$

$$\textcircled{17} -7^2 = -49$$

$$\textcircled{18} (-4)^3 = -64$$

$$\textcircled{19} -8^2 = -64$$

$$\textcircled{20} (-4) + \boxed{(-6)(-2)} - (-4)$$

$$(-4) + (12) - (-4)$$

$$(-4) + (12) + (4) = 12$$

$$\textcircled{21} (-8) - (-3) + \boxed{(-10) \div (2)}$$

$$(-8) - (-3) + (-5)$$

$$(-8) + (3) + (-5) = -10$$



$$\textcircled{22} (-1)^5 - (-3)^2$$

$$(-1) - (9)$$

$$(-1) + (-9) = -10$$

$$\textcircled{23} (-2)^0 - (-4)(-2)^3$$

$$(1) - (-4)(-8)$$

$$(1) - (32)$$

$$(1) + (-32) = -31$$

$$\textcircled{24} x - y + z$$

$$(-1) - (-2) + (-3)$$

$$(-1) + (2) + (-3) = -2$$

$$\textcircled{25} 2x - 3y$$

$$2(-1) - 3(-2)$$

$$(-2) - (-6)$$

$$(-2) + (+6) = 4$$

$$\textcircled{26} x^2 + xy$$

$$(-1)^2 + (-1)(-2)$$

$$(1) + (-1)(-2)$$

$$(1) + (2) = 3$$

$$\textcircled{27} 3z - 2yz$$

$$3(-3) - 2(-2)(-3)$$

$$(-9) - (12)$$

$$(-9) + (-12) = -21$$

$$\textcircled{28} 3(x+y)$$

$$3((-1) + (-2))$$

$$3(-3) = -9$$

$$\textcircled{29} 2xy^2 - z$$

$$2(-1)(-2)^2 - (-3)$$

$$2(-1)(4) - (-3)$$

$$(-8) - (-3)$$

$$(-8) + (+3) = -5$$

Cumulative Review

$$\begin{aligned} 30) \quad & Z(x+y)^2 \\ & (-3)((-1)+(-2))^2 \\ & (-3)(-3)^2 \\ & (-3)(9) = -27 \end{aligned}$$

$$\begin{aligned} 31) \quad & 3y^3 - 2x^2 \\ & 3(-2)^3 - 2(-1)^2 \\ & 3(-8) - 2(1) \\ & (-24) - (2) \\ & (-24) + (-2) = -26 \end{aligned}$$

$$\begin{aligned} 32) \quad & x - 5^{+5} = -7^{+5} \\ & x = -2 \end{aligned}$$

$$\begin{aligned} 33) \quad & 3n - 4^{+4} = 11^{+4} \\ & 3n = 15 \\ & \left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(15) \\ & n = 5 \end{aligned}$$

$$\begin{aligned} 34) \quad & 21^{-21} - 2a = 13^{-21} \\ & -2a = -8 \\ & \left(-\frac{1}{2}\right)(-2a) = \left(-\frac{1}{2}\right)(-8) \\ & a = 4 \end{aligned}$$

$$\begin{aligned} 35) \quad & 6^{-6} - 3x = 15^{-6} \\ & -3x = 9 \\ & \left(-\frac{1}{3}\right)(-3x) = \left(-\frac{1}{3}\right)(9) \\ & x = -3 \end{aligned}$$

$$\begin{aligned} 36) \quad & 2n - 4 = 3 - 4n + 5 \\ & 2n^{+4n} - 4 = 8 - 4n^{+4n} \\ & 6n - 4^{+4} = 8^{+4} \\ & 6n = 12 \\ & \left(\frac{1}{6}\right)(6n) = \left(\frac{1}{6}\right)(12) \\ & n = 2 \end{aligned}$$

$$\begin{aligned} 37) \quad & -8 - 3x + 9 = -7x - 11 \\ & 1 - 3x^{+7x} = -7x^{+7x} - 11 \\ & 1 + 4x = -11^{-1} \\ & 4x = -12 \\ & \left(\frac{1}{4}\right)(4x) = \left(\frac{1}{4}\right)(-12) \\ & x = -3 \end{aligned}$$

$$\begin{aligned} 38) \quad & 3(2n - 2) = 30 \\ & 6n - 6^{+6} = 30^{+6} \\ & 6n = 36 \\ & \left(\frac{1}{6}\right)(6n) = \left(\frac{1}{6}\right)(36) \\ & n = 6 \end{aligned}$$

$$\begin{aligned} 39) \quad & 4(a+1) - 2 = 3(4a-2) \\ & 4a + 4 - 2 = 12a - 6 \\ & 4a + 2^{-12a} = 12a - 6^{-12a} \\ & -8a + 2^{-2} = -6^{-2} \\ & -8a = -8 \\ & \left(-\frac{1}{8}\right)(-8a) = \left(-\frac{1}{8}\right)(-8) \\ & a = 1 \end{aligned}$$

$$\begin{aligned} 40) \quad & 18 + 3(5x + 4) = 0 \\ & 18 + 15x + 12 = 0 \\ & 30^{-30} + 15x = 0^{-30} \\ & 15x = -30 \\ & \left(\frac{1}{15}\right)(15x) = \left(\frac{1}{15}\right)(-30) \\ & x = -2 \end{aligned}$$

$$\begin{aligned} 41) \quad & 5n - 3(2n - 4) = -4n + 21 \\ & 5n - 6n + 12 = -4n + 21 \\ & -n + 12^{+4n} = -4n^{+4n} + 21 \\ & 3n + 12^{-12} = 21^{-12} \\ & 3n = 9 \\ & \left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(9) \\ & n = 3 \end{aligned}$$

$$\begin{aligned} 42) \quad & n + 12^{-12} = -2^{-12} \\ & n = -14 \end{aligned}$$

$$\begin{aligned} 43) \quad & 4n - (n + 6) = -15 \\ & 4n - n - 6 = -15 \\ & 3n - 6^{+6} = -15^{+6} \\ & 3n = -9 \\ & \left(\frac{1}{3}\right)(3n) = \left(\frac{1}{3}\right)(-9) \\ & n = -3 \end{aligned}$$

Cumulative Review

$$\textcircled{44} \quad 8n - (n-3) = 17$$

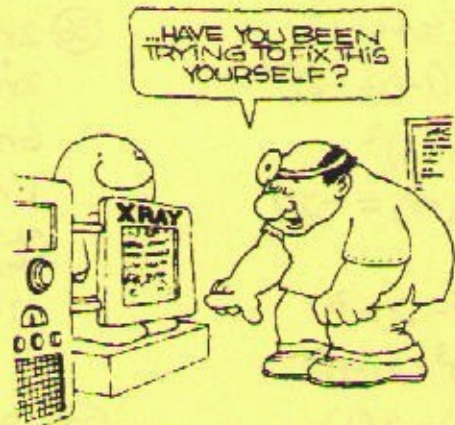
$$8n - n + 3 = 17$$

$$7n + 3 = 17$$

$$7n = 14$$

$$\left(\frac{1}{7}\right)(7n) = \left(\frac{1}{7}\right)(14)$$

$$n = 2$$



$$\textcircled{45} \quad (3n+2) - (5n-5) = 11$$

$$3n+2-5n+5=11$$

$$-2n+7=11$$

$$-2n=4$$

$$\left(-\frac{1}{2}\right)(-2n) = \left(-\frac{1}{2}\right)(4)$$

$$n = -2$$

PRACTICE TEST

$$\textcircled{1} \quad (-5) - (-12) \quad \textcircled{2} \quad (-2) \times (-4) \times (-1)$$

$$(-5) + (+12) = 7 \quad -8$$

$$\textcircled{3} \quad (-3) + (-5) - (-4) - (+7) - (-8)$$

$$(-3) + (-5) + (+4) + (-7) + (+8)$$

$$(+12) + (-15) = -3$$

$$\textcircled{4} \quad (-6) - (-8) + (-5) - (+9) - (-2)$$

$$(-6) + (+8) + (-5) + (-9) + (+2)$$

$$(+10) + (-20) = -10$$

$$\textcircled{5} \quad (-2)^6 = 64 \quad \textcircled{6} \quad -2^4 = -16$$

$$\textcircled{7} \quad (-5) - [(-7) \times (-4)]$$

$$(-5) - (28)$$

$$(-5) + (-28) = -33$$

$$\textcircled{8} \quad (-2)^2 - (-1)^5 - 4^2$$

$$(4) - (-1) - 16$$

$$(4) + (1) + (-16)$$

$$(5) + (-16) = -11$$

$$\textcircled{46} \quad (n+2) - (2n+5) = (n+5)$$

$$n+2-2n-5=n+5$$

$$-n-3=n+5$$

$$-2n-3=5$$

$$-2n=8$$

$$\left(-\frac{1}{2}\right)(-2n) = \left(-\frac{1}{2}\right)(8)$$

$$n = -4$$

$$\textcircled{47} \quad (2n-3) - (5n+1) = (n+12)$$

$$2n-3-5n-1=n+12$$

$$-3n-4=n+12$$

$$-4n-4=12$$

$$-4n=16$$

$$\left(-\frac{1}{4}\right)(-4n) = \left(-\frac{1}{4}\right)(16)$$

$$n = -4$$

Cumulative Review

$$\begin{aligned} \textcircled{9} & (-1)(-4) - (-6) \div (-1)^3 \\ & \boxed{(-1)(-4)} - \boxed{(-6) \div (-1)} \\ & (4) - (6) \\ & (4) + (-6) = -2 \end{aligned}$$

$$\begin{aligned} \textcircled{10} & 3a - 2bc \\ & 3(-2) - 2(-3)(4) \\ & (-6) - (-24) \\ & (-6) + (+24) = 18 \end{aligned}$$

$$\begin{aligned} \textcircled{11} & 2ab^2 - 3c \\ & 2(-2)(-3)^2 - 3(4) \\ & 2(-2)(9) - 3(4) \\ & (-36) - (12) \\ & (-36) + (-12) = -48 \end{aligned}$$

$$\begin{aligned} \textcircled{12} & 3(b+c) + 2a \\ & 3(-3) + (4) + 2(-2) \\ & 3(1) + 2(-2) \\ & (3) + (-4) = -1 \end{aligned}$$

$$\begin{aligned} \textcircled{13} & abc + c^2 \\ & (-2)(-3)(4) + (4)^2 \\ & (-2)(-3)(4) + (16) \\ & (24) + (16) = 40 \end{aligned}$$

$$\begin{aligned} \textcircled{14} & 15 - 4x = x - 5 \\ & 15^{-15} - 5x = -5^{-15} \\ & -5x = -20 \\ & (-1/5)(-5x) = (-1/5)(-20) \\ & x = 4 \end{aligned}$$

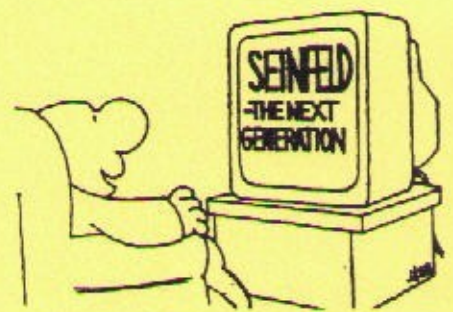
$$\begin{aligned} \textcircled{15} & 3(n-2) = -12 \\ & 3n - 6^{+6} = -12^{+6} \\ & 3n = -6 \\ & (1/3)(3n) = (1/3)(-6) \\ & n = -2 \end{aligned}$$

$$\begin{aligned} \textcircled{16} & 2x - 5(x-3) = 4x + 1 \\ & 2x - 5x + 15 = 4x + 1 \\ & -3x + 15 = 4x + 1 \\ & -7x + 15^{-15} = 1^{-15} \\ & -7x = -14 \\ & (-1/7)(-7x) = (-1/7)(-14) \\ & x = 2 \end{aligned}$$

$$\begin{aligned} \textcircled{17} & 2(n+2) - (3n-5) = 1-3n \\ & 2n + 4 - 3n + 5 = 1 - 3n \\ & -n + 9 = 1 - 3n \\ & 2n + 9^{-9} = 1^{-9} \\ & 2n = -8 \\ & (1/2)(2n) = (1/2)(-8) \\ & n = -4 \end{aligned}$$

$$\begin{aligned} \textcircled{18} & 5n + 3^{-3} = 33^{-3} \\ & 5n = 30 \\ & (1/5)(5n) = (1/5)(30) \\ & n = 6 \end{aligned}$$

$$\begin{aligned} \textcircled{19} & (3n-2) - (5n+1) = 5 \\ & 3n - 2 - 5n - 1 = 5 \\ & -2n - 3^{+3} = 5^{+3} \\ & -2n = 8 \\ & (-1/2)(-2n) = (-1/2)(8) \\ & n = -4 \end{aligned}$$



$$\begin{aligned} \textcircled{20} & (3n-4) - (2n+6) = (4n-4) \\ & 3n - 4 - 2n - 6 = 4n - 4 \\ & n - 10 = 4n - 4 \\ & -3n - 10^{+10} = -4^{+10} \\ & -3n = 6 \\ & (-1/3)(-3n) = (-1/3)(6) \\ & n = -2 \end{aligned}$$