

Unit 1 Study Guide

Date _____ Period _____

Evaluate each expression.

1) $(-6 - 1)^2$

2) $\frac{12}{6 - 1 - 2 + 1}$

3) $4 + 3 + 3 - 5 - 2$

4) $(12 \div 3 - 1 - (3 - 2)) \cdot 6$

Evaluate each using the values given.

5) $x - y^2$; use $x = 6$, and $y = -4$

6) $3cb$; use $b = -2$, and $c = 6$

7) $x\left(\frac{2}{2} - z\right)$; use $x = -1$, and $z = 2$

8) $2 - z - \frac{x}{5}$; use $x = -5$, and $z = -6$

Define all the following words.

9) Coefficient:

Variable:

Exponent:

Constant:

Terms:

Solve each equation.

10) $-18 + n = -1$

11) $22 = 2 + x$

12) $\frac{x}{5.2} = 5.5$

13) $\frac{493}{11} = \frac{29}{3}p$

14) $-128 = r + 4(3r - 6)$

15) $188 = 4(4r - 1) + 8r$

16) $-109 = -5 - 8(5 - 2n)$

17) $-6 - 3x = -(3x + 8)$

18) $-2(1 + n) + 5 = -(2n - 3)$

19) $4x + 2(3x + 6) = 2(6 - 6x)$

$$20) 6(x + 5) = -3(-8x + 2)$$

$$21) 2(4m - 7) - 5.3 = -83.3$$

$$22) 1.8x - 7.6 = 1.9(x + 0.8) + 1.5x$$

$$23) \frac{8}{3}b - 2 - \frac{2}{5} = -\frac{106}{15}$$

Solve each equation for the indicated variable.

$$24) am = n + p, \text{ for } a$$

$$25) \frac{x}{c} = \frac{d}{r}, \text{ for } x$$

$$26) 8a = 2w + 4v, \text{ for } a$$

$$27) -x - 2 = 3r - d, \text{ for } x$$

- 28) Toucans and Macaws are both tropical birds. The length of an average toucan is about two-thirds of the length of an average Macaw. Toucans are about 24 in. long. What is the length of an average Macaw?
- 29) A delivery person uses a service elevator to bring boxes of books up to an office. The delivery person weighs 160 lbs and each box of books weighs 50 lbs. The maximum capacity of the elevator is 1000 lbs. How many boxes of books can the delivery person bring up at one time?
- 30) The daily productions costs for a juice company are \$1200 per day on business expenses plus \$1.10 per bottle of juice they make. They charge \$2.50 for each bottle of juice they sell. How many bottles of juice must the company sell in one day to equal the daily cost of production?

Complete the proof.

31) Prove: If $4(a - 7) + 10(2a + 3) = 50$, then $x = 2$

- | | | | |
|----|------------------------------|----|-------|
| 1. | $4(a - 7) + 10(2a + 3) = 50$ | 1. | _____ |
| 2. | $4a - 28 + 20a + 30 = 50$ | 2. | _____ |
| 3. | $4a + 20a - 28 + 30 = 50$ | 3. | _____ |
| 4. | $(4a + 20a) - 28 + 30 = 50$ | 4. | _____ |
| 5. | $24a + 2 = 50$ | 5. | _____ |
| 6. | $24a = 48$ | 6. | _____ |
| 7. | $a = 2$ | 7. | _____ |