

# Algebra – Chapter 1 Review

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Translate each phrase into an algebraic expression

1. The quotient of 14 and a number

$$14 \div n \text{ or } \frac{14}{n}$$

2. The product of x and 7

$$7x$$

3. The quantity of a number plus 4 multiplied by 2

$$(n + 4) \cdot 2$$

4. 16 less than a number

$$n - 16$$

5. The total cost to rent a motorcycle is \$85 times the number of hours the motorcycle is used. Choose the equation that models this situation if c = the total cost and h = number of hours.

A.  $c = h + 85$

B.  $c = 85h$

C.  $h = 85c$

D.  $c = h - 85$

Evaluate each expression.

6.  $(30 - 3) \div 3$

$$27 \div 3$$

$$9$$

7.  $1 + 7^2$

$$1 + 49$$

$$50$$

8.  $9(3 + 3) \div 6$

$$9(6) \div 6$$

$$54 \div 6$$

$$9$$

9.  $8(x - y)$  for  $x = 5, y = 2$

$$8(5 - 2)$$

$$8(3)$$

$$24$$

10.  $m - n \div 4$  for  $m = 5, n = 8$

$$5 - 8 \div 4$$

$$5 - 2$$

$$3$$

11.  $q \div 6 + p$  for  $p = 10, q = -12$

$$-12 \div 6 + 10$$

$$-2 + 10$$

$$8$$

12. Explain the error in the work.

$$54 \div 6 + 3$$

$$54 \div 9$$

$$6$$

The student added before dividing. The problem should look like :

$$54 \div 6 + 3$$

$$9 + 3$$

$$12$$

Find the value of each expression.

13.  $|6.1|$

$$6.1$$

14.  $|-1043|$

$$1043$$

15.  $|12| + |-6 + 10|$

$$|12| + |4|$$

$$12 + 4$$

$$16$$

Solve.

16.  $-12 + (-11)$

$\downarrow$   
 $\textcircled{-23}$

17.  $-8 - 3$

$\downarrow$   
 $-8 + -3$   
 $\downarrow$   
 $\textcircled{-11}$

18.  $-13 + 16 - 5$

$\downarrow$   
 $3 - 5$   
 $\downarrow$   
 $3 + -5$   
 $\downarrow$   
 $\textcircled{-2}$

19.  $(-6)(-10)(-8)$

$\downarrow$   
 $60(-8)$   
 $\downarrow$   
 $\textcircled{-480}$

20.  $-9^2$

$\downarrow$   
 $-(9 \cdot 9)$   
 $\downarrow$   
 $\textcircled{-81}$

21.  $(-2)^4$

$\downarrow$   
 $(-2)(-2)(-2)(-2)$   
 $\downarrow$   
 $4(-2)(-2)$   
 $\downarrow$   
 $-8(-2) = \textcircled{16}$

22.  $\begin{bmatrix} 8 & -2 \\ -1 & 3 \end{bmatrix} + \begin{bmatrix} -9 & 6 \\ -7 & 11 \end{bmatrix}$

$\begin{bmatrix} 8 + -9 & -2 + 6 \\ -1 + -7 & 3 + 11 \end{bmatrix} = \begin{bmatrix} -1 & 4 \\ -8 & 14 \end{bmatrix}$

23.  $\begin{bmatrix} 7 \\ -5 \\ 2 \end{bmatrix} - \begin{bmatrix} 11 \\ 8 \\ -6 \end{bmatrix}$

$\downarrow$  add the opposite  
 $\begin{bmatrix} 7 \\ -5 \\ 2 \end{bmatrix} + \begin{bmatrix} -11 \\ -8 \\ 6 \end{bmatrix} = \begin{bmatrix} 7 + -11 \\ -5 + -8 \\ 2 + 6 \end{bmatrix} = \begin{bmatrix} -4 \\ -13 \\ 8 \end{bmatrix}$

Use the Distributive Property and combine like terms to rewrite the expression.

24.  $3(4 + 3r)$

$3(4) \quad 3(3r)$   
 $\textcircled{12 + 9r}$

25.  $(3 - 7x)(-2)$

$-2(3) \quad -2(-7x)$   
 $\textcircled{-6 + 14x}$

26.  $-4(n + 8)$

$-4(n) \quad -4(8)$   
 $\textcircled{-4n - 32}$

27.  $1 + 7(1 - 3b)$

$1 + 7(1) \quad 7(-3b)$   
 $1 + 7 - 21b$   
 $\textcircled{8 - 21b}$

Simplify by combining like terms.

28.  $\textcircled{b} - 3 + 6 - 2b$

$\textcircled{-1b + 3}$  or  $3 - 1b$

29.  $\textcircled{1} - 3v + 10$

$\textcircled{11 - 3v}$  or  $-3v + 11$

30.  $\textcircled{7p} - \textcircled{10p} + 2 + 3a - \textcircled{1}$

$\textcircled{-3p + 1 + 3a}$

31.  $\textcircled{x} + 2y + \textcircled{8x} - 12y + z$

$\textcircled{9x - 10y + z}$