118 Intermediate algebra

Review 1

Find the value of the algebraic expression at the given replacement value.

1) The algebraic expression 3.9x gives the total weight in pounds of x tents of a certain type. Find the total weight of 9 tents. 1) _____

A) 12.9 lb B) 351 lb C) 3.51 lb D) 35.1 lb

List all the elements of B that belong to the given set.

2) $B = \left\{6, \sqrt{6}, -16, 0, \frac{4}{5}, -\frac{5}{4}, 4.2, \sqrt{9}\right\}$ 2) _____

Integers

A) 6, 0, $\sqrt{9}$ B) 6, –16, 0 C) 6, 0 D) 6, –16, 0, $\sqrt{9}$

Find the value.

3) $-|18|$ 3) _____

A) –18 B) –36 C) 18 D) 0

Find the opposite of the number.

4) $-\frac{11}{6}$ 4) _____

A) $\frac{6}{11}$ B) $\frac{11}{6}$ C) $-\frac{6}{11}$ D) $-\frac{11}{6}$

Write the phrase as a variable expression. Use x to represent "a number."

5) 9 more than 7 times a number 5) _____

A) 7(9 + x) B) 7x + 9 C) 9x + 7 D) 16x

Add or subtract as indicated.

6) $\frac{1}{9} - \left(-\frac{1}{3}\right)$ 6) _____

A) $\frac{4}{9}$ B) $-\frac{4}{9}$ C) $\frac{2}{9}$ D) $-\frac{2}{9}$

Multiply or divide as indicated.

7) $-\frac{4}{5} \div \left(-\frac{7}{10}\right)$ 7) _____

A) $-\frac{14}{25}$ B) $\frac{7}{8}$ C) $-\frac{8}{7}$ D) $\frac{8}{7}$

Evaluate.

8) $\left(-\frac{1}{2}\right)^4$ 8) _____

A) $\frac{1}{4}$ B) $\frac{1}{16}$ C) $-\frac{1}{4}$ D) $-\frac{1}{16}$

Find the indicated root.

9) $-\sqrt{\frac{1}{16}}$ 9) _____

A) $-\frac{1}{7}$ B) $-\frac{1}{4}$

C) $-\frac{1}{32}$ D) not a real number

Simplify the expression.

10) $\frac{|5(-4)| - |1 - 11|}{-16}$ 10) _____

A) $\frac{5}{8}$ B) $\frac{15}{8}$ C) $-\frac{5}{8}$ D) $-\frac{15}{8}$

Find the value of the algebraic expression at the given replacement value.

11) $\frac{y - 7x}{2x + xy}$ when $x = -2$, $y = 3$ 11) _____

A) $\frac{11}{10}$ B) $-\frac{9}{5}$ C) $-\frac{17}{10}$ D) $-\frac{11}{2}$

Solve the problem.

12) If c is degrees Celsius, the algebraic expression $1.8c + 32$ represents the equivalent temperature in degrees Fahrenheit. Find the Fahrenheit temperature when $c = 95$. 12) _____

A) 203° F B) 139° F C) 71° F D) 35.4° F

Write the sentence using mathematical symbols.

13) The difference of twice x and 3 is less than or equal to 11. 13) _____

A) $2x - 3 \geq 11$ B) $3 - 2x \leq 11$ C) $2x - 3 \leq 11$ D) $x - 2 \cdot 3 \geq 11$

Find the opposite (or additive inverse) of the number.

14) -22 14) _____

A) -22 B) $-\frac{1}{22}$ C) 0 D) 22

Write the reciprocal (or multiplicative inverse) of the number if it exists.

15) $\frac{7}{4}$ 15) _____

A) $\frac{4}{7}$ B) $-\frac{4}{7}$ C) 1 D) $-\frac{7}{4}$

Use a commutative property to write an equivalent expression.

16) $\frac{23}{14} \cdot \frac{x}{5}$ 16) _____

A) $\frac{23}{14} \cdot \frac{x}{5}$ B) $\frac{x}{5} \cdot \frac{23}{14}$ C) $\frac{x}{23} \cdot \frac{5}{14}$ D) $\frac{5}{14} \cdot \frac{x}{23}$

Use an associative property to write an equivalent expression.

17) $(2 \cdot 14) \cdot 22$ 17) _____

A) $2 \cdot (14 \cdot 22)$ B) $22 \cdot (2 \cdot 14)$ C) $(2 \cdot 14) \cdot 22$ D) $(14 \cdot 2) \cdot 22$

Use the distributive property to find the product.

18) $-(s - 2y)$ 18) _____

A) $s - 2y$ B) $-s - 2y$ C) $s + 2y$ D) $-s + 2y$

Write the following as an algebraic expression.

19) If 6x is an even integer, represent the next even integer as an expression in x. 19) _____

A) 12x B) 6x + 2 C) 6x + 1 D) 8x

Simplify the expression.

20) $-14 - (6y - 4)$ 20) _____

A) $-6y - 10$ B) $-6y - 18$ C) $-6y + 10$ D) $-6y + 18$

21) $4(6x^2 - 2) - 3(x^2 - 3)$ 21) _____

A) $21x^2 - 5$ B) $21x^2 - 17$ C) $12x^2 + 1$ D) $21x^2 + 1$

22) $5.5x - 1.9 - 3.6x + 7 + 2.7x$ 22) _____

A) 4.6x + 8.9 B) 4.6x – 5.1 C) 4.6x + 5.1 D) 11.8x + 5.1

23) $\frac{1}{3}(15x - 3) - \frac{1}{8}(72x - 9y)$ 23) _____

A) $-4x + \frac{1}{8}y$ B) $-4x + \frac{9}{8}y - 1$ C) $4x + \frac{1}{8}y$ D) $4x + \frac{9}{8}y - 1$

24) The _____ of a number a is –a. 24) _____

A) reciprocal B) opposite C) inequality D) absolute value

25) The numbers 0, 1, 2, 3, ... are called _____ numbers 25) _____

A) exponent B) whole C) variable D) real

Solve the equation.

26) $-51 = -9x - 6$ 26) _____

A) –36 B) –32 C) 5 D) 11

27) $x(7x - 5) + 4 = 7x(x - 4) + x$ 27) _____

A) $-\frac{4}{23}$ B) 6 C) – 2 D) $-\frac{2}{11}$

28) $-\frac{1}{8}(x-16) - \frac{1}{8}(x-8) = x+5$ 28) _____

A) $-\frac{16}{5}$ B) $-\frac{8}{5}$ C) $-\frac{32}{5}$ D) $-\frac{24}{5}$

Solve.

29) The sum of three consecutive even integers is 318. Find the integers. 29) _____

A) 104, 106, 108 B) 106, 108, 110 C) 102, 104, 106 D) 105, 106, 107

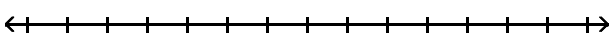
Solve the formula for the specified variable.

30) $S = 2\pi rh + 2\pi r^2$ for h 30) _____

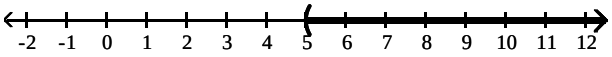
A) $h = \frac{S}{2\pi r} - 1$ B) $h = S - r$ C) $h = 2\pi(S - r)$ D) $h = \frac{S - 2\pi r^2}{2\pi r}$

Solve the inequality. Write the solution set in interval notation and graph the solution set.

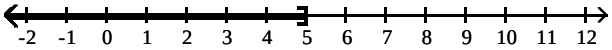
31) $3z - 1 \geq 2z + 4$ 31) _____



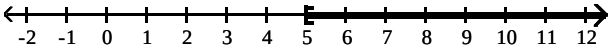
A) (5, ∞)



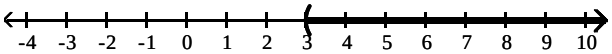
B) (−∞, 5]



C) [5, ∞)



D) (3, ∞)



Write the solution set using interval notation.

32) $15(14x + 1) > 15$ 32) _____

A) $\left(\frac{1}{210}, \infty\right)$ B) $\left[\frac{1}{210}, \infty\right)$ C) (0, ∞) D) [0, ∞)

List the elements of the set.

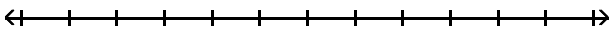
33) If A = {7, 8, 9, 12} and B = {5, 7, 8, 10}, list the elements of A ∩ B. 33) _____

A) { } B) {5, 9, 10, 12}

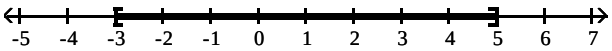
C) {7, 8} D) {5, 7, 8, 9, 10, 12}

Solve the compound inequality. Graph the solution set.

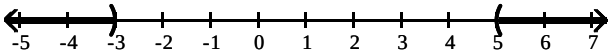
34) $7x < 35$ and $x + 7 > 4$ 34) _____



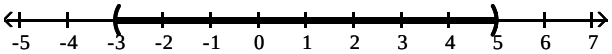
A) [–3, 5]



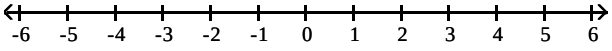
B) $(-\infty, -3) \cup (5, \infty)$



C) (–3, 5)



D) ∅



List the elements of the set.

35) If A = {x | x is an even integer} and B = {–11, –9, –7, –5}, list the elements of $A \cup B$. 35) _____

A) {x | x is an even integer}

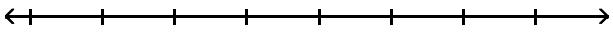
B) { }

C) {x | x is an even integer or x = –11 or x = –9 or x = –7 or x = –5}

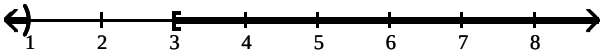
D) {–11, –9, –7, –5}

Solve the compound inequality. Graph the solution set.

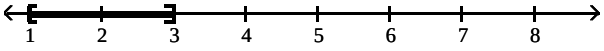
36) $9x - 6 < 3x$ or $-2x \le -6$ 36) _____



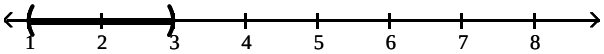
A) $(-\infty, 1) \cup [3, \infty)$



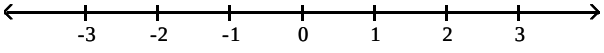
B) [1, 3]



C) (1, 3)



D) ∅



Solve the absolute value equation.

37) $\left|\frac{5x + 10}{2}\right| = 5$ 37) _____

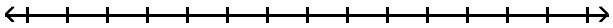
A) 4, 0 B) –4, 4 C) –4, 0 D) ∅

38) $|7x - 5| = |-6 - 8x|$ 38) _____

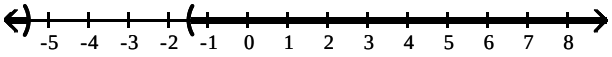
A) $-\frac{1}{15}, 11$ B) $-\frac{1}{15}, -11$ C) $-\frac{1}{15}$ D) $\emptyset$

Solve the inequality. Graph the solution set.

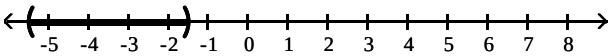
39) $|2k + 7| + 9 < 13$ 39) _____



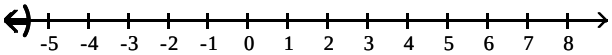
A) $\left(-\infty, -\frac{11}{2}\right) \cup \left(-\frac{3}{2}, \infty\right)$



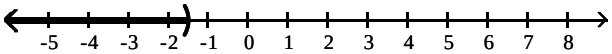
B) $\left(-\frac{11}{2}, -\frac{3}{2}\right)$



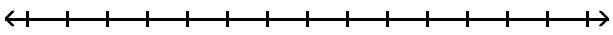
C) $\left(-\infty, -\frac{11}{2}\right)$



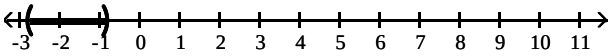
D) $\left(-\infty, -\frac{3}{2}\right)$



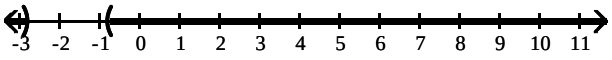
40) $|5k + 9| - 1 > 4$ 40) _____



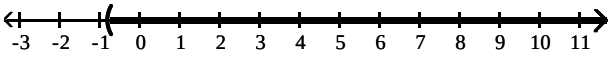
A) $\left(-\frac{14}{5}, -\frac{4}{5}\right)$



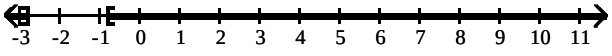
B) $\left(-\infty, -\frac{14}{5}\right] \cup \left(-\frac{4}{5}, \infty\right)$



C) $\left(-\frac{4}{5}, \infty\right)$



D) $\left(-\infty, -\frac{14}{5}\right] \cup \left[-\frac{4}{5}, \infty\right)$



Answer Key
Testname: REVIEW 1

1) D
2) D
3) A
4) B
5) B
6) A
7) D
8) B
9) B
10) C
11) C
12) A
13) C
14) D
15) A
16) B
17) A
18) D
19) B
20) A
21) D
22) C
23) B
24) B
25) B
26) C
27) D
28) B
29) A
30) D
31) C
32) C
33) C
34) C
35) C
36) A
37) C
38) B
39) B
40) B