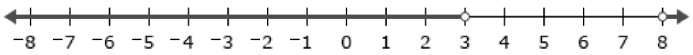
Test 3 (Unit 4 and Unit 5) version 2

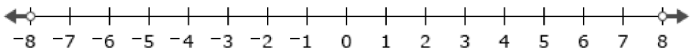
Question 1 .

Which graph shows the solution set of the inequality $|4x - 22| > 10$?

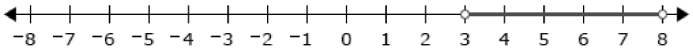
○ **A.**



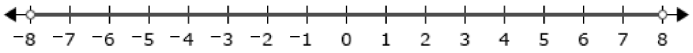
○ **B.**



○ **C.**



○ **D.**

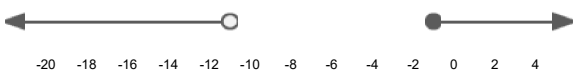


Question 2 .

Which of the following number lines shows the solution to the inequality given below?

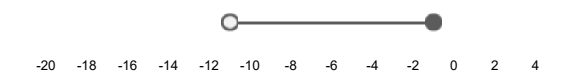
$4x + 3 \leq -41$ OR $2x + 2 > 0$

○ **A.**

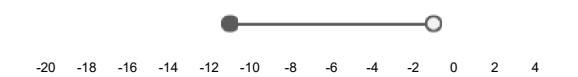


○ **B.**

○ **C.**



○ **D.**



Question 3 .

Simplify.

$$\sqrt{847}$$

○ **A.** $121\sqrt{7}$

○ **B.** $7\sqrt{11}$

○ **C.** $11\sqrt{7}$

○ **D.** $77\sqrt{11}$

Question 4 .

Which binomial is a factor of $x^2 + 3x - 28$?

○ **A.** $(x - 2)$

○ **B.** $(x + 14)$

○ **C.** $(x - 4)$

○ **D.** $(x - 7)$

Question 5 .

Olivia purchased *x* child tickets and *y* adult tickets at the movies. She spent a total of $46. The equation below describes the relationship between the number of child tickets and the number of adult tickets purchased.

$$7x + 9y = 46$$

The ordered pair (4, 2) is the solution to the equation. What does the solution (4, 2) represent?

○ **A.** Olivia purchased 4 child tickets and 2 adult tickets.

○ **B.** Child tickets cost $4 each and adult tickets cost $2 each.

○ **C.** Olivia spent $4 on child tickets and $2 on adult tickets.

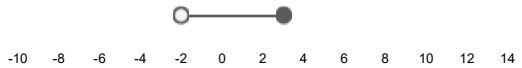
○ **D.** Olivia purchased 2 child tickets and 4 adult tickets.

Question 6 .

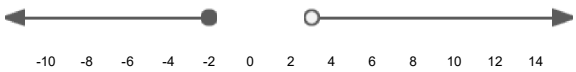
Which of the following number lines shows the solution to the inequality given below?

$3x - 3 \leq -9$ OR $5x - 6 > 9$

○ **A.**

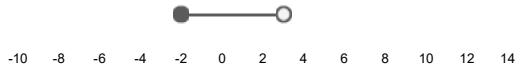


○ **B.**



○ **C.**

○ **D.**



Question 7 .

Molly paid $1,711.20 for a used car. If the price paid includes a 8% discount, which of the following equations can be used to determine the price of the car before the discount?

(Let x represent the cost of the car and y represent the total cost before the discount.)

○ **A.** $y = 1.8x$

○ **B.** $y = 0.92x$

○ **C.** $y = x + 8x$

○ **D.** $y = 1.08x$

Question 8 .

Solve for *x*.

$$19x = 15x + 24x + 4$$

○ **A.** $x = \frac{1}{6}$

○ **B.** $x = -\frac{2}{5}$

○ **C.** $x = -\frac{1}{5}$

○ **D.** $x = -\frac{8}{5}$

Question 9 .

Simplify the following expression.

$$\frac{x^2 + 16x + 63}{x + 7}$$

○ **A.** $x + 9$

○ **B.** $x + 7$

○ **C.** $x^2 + 39x + 56$

○ **D.** $x^2 + 47x + 70$

Question 10 .

Cassie received a 15%-off coupon and a $5-off coupon from a department store. She visits the department store during a tax-free sale and plans to spend no more than $56.20. She also plans to use both of the coupons she received on her purchase. If this situation is modeled by the inequality below, what must be the original purchase total, *x*, before the discounts are applied?

$$0.85x - \$5 \leq \$56.20$$

○ **A.** The original purchase total must be at most to $72 before the discounts are applied.

○ **B.** The original purchase total must be at least to $61.12 before the discounts are applied.

○ **C.** The original purchase total must be at least to $61.20 before the discounts are applied.

○ **D.** The original purchase total must be at least to $72 before the discounts are applied.

Question 11 .

Solve for *x*.

$$9(x + 1) + 5(x + 1) = 5x - 5$$

○ **A.** $x = -1$

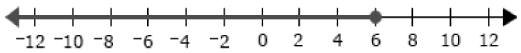
○ **B.** $x = -\frac{19}{9}$

○ **C.** $x = 9$

○ **D.** $x = 1$

Question 12 .

The solution set of an inequality is shown below.



Which inequality has the solution set shown on the number line?

○ **A.** $\frac{8}{8} \leq \frac{3}{4}$

○ **B.** $\frac{-8}{8} \leq \frac{3}{4}$

○ **C.** $\frac{8}{8} \leq \frac{-3}{4}$

○ **D.** $\frac{-8}{8} \leq \frac{-3}{4}$

Question 13 .

Solve for *x*.

$$9x - 6 = 6x + 12$$

○ **A.** $x = 4$

○ **B.** $x = 6$

○ **C.** $x = \frac{6}{5}$

○ **D.** $x = \frac{4}{5}$

Question 14 .

Harvey is solving an equation. His work is shown below.

$$5x + (5x + 9) = 57$$
$$(5x + 5x) + 9 = 57$$
$$10x + 9 = 57$$

Which statement describes the procedure Harvey used in his work and which property justifies the procedure?

- **A.** Harvey regrouped the terms to add 5*x* and 5*x* and 9. This procedure is justified by the commutative property.
- **B.** Harvey regrouped the terms to add 5*x* and 5*x*. This procedure is justified by the associative property.
- **C.** Harvey regrouped the terms to multiply 5*x* and 5*x* by 9. This procedure is justified by the associative property.
- **D.** Harvey regrouped the terms to multiply 5*x* and 5*x*. This procedure is justified by the commutative property.

Question 15 .

Maria is weighing a glass jar filled with marbles. The weight of each marble is 4 grams and the weight of the empty jar is *x* grams. There are 72 marbles in the glass jar and the total weight of the marbles and the glass jar is 703 grams.

Which equation could be used to find *x*, the weight of the empty glass jar?

- **A.** 703 = 72*x* + 4
- **B.** 703 = 4*x* + 72
- **C.** 703 = 4(72) + *x*
- **D.** 703 = 4*x* ÷ 72

Question 16 .

Simplify the following expression.

$3x(5x - 3)$

- **A.** $15x^2 - 4x$
- **B.** $15x^2 + 4x$
- **C.** $15x^2 + 14x$
- **D.** $15x^2 - 9x$

Question 17 .

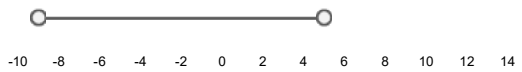
Which of the following number lines shows the solution to the compound inequality given below?

$5x + 8 \geq -37$ AND $-5x - 1 > -26$

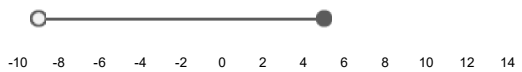
○ **A.**

○ **B.**

○ **C.**



○ **D.**



Question 18 .

Solve the following compound inequality.

$5x - 6 > -26$ OR $-4x \leq -20$

○ **A.** $x > -4$

○ **B.** $x \geq 5$

○ **C.** $x < -4$ OR $x \geq 5$

○ **D.** $-4 < x \leq 5$

Question 19 .

Solve for *p*.

$$\frac{3p - 28}{4} = 2$$

○ **A.** $p = 12$

○ **B.** $p = -\frac{20}{3}$

○ **C.** $p = 10$

○ **D.** $p = 40$

Question 20 .

A hotel has a budget of $63,750 to repaint the lobby and some hotel rooms. The hotel spent $26,700 on painting the lobby. Each room costs $4,250 to paint. The inequality $26{,}700 + 4{,}250n \leq \$63{,}750$ can be used to determine the number of rooms (n) the hotel can repaint.

Which statement about the number of rooms that can be painted is true?

○ **A.** The hotel can repaint 2 rooms, but this number is neither the maximum nor the minimum.

○ **B.** The maximum number of rooms that can be repainted is 2.

○ **C.** The hotel can repaint 9 rooms.

○ **D.** The minimum number of rooms that can be repainted is 2.

Question 21 .

Evaluate the following expression for $m = 25$.

$$\sqrt{4m} + 1$$

○ **A.** 19

○ **B.** 9

○ **C.** 11

○ **D.** 21

Question 22 .

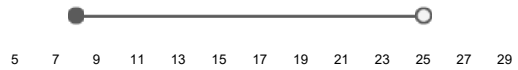
Which of the following number lines shows the solution to the compound inequality given below?

$$-13 \leq -2x + 3 > -47$$

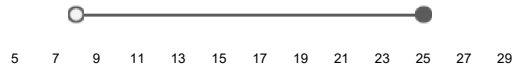
○ **A.**

○ **B.**

○ **C.**



○ **D.**



Question 23 .

Solve for *x*.

$$9x + 5 = 6x - 7x + 20$$

○ **A.** $x = \frac{3}{2}$

○ **B.** $x = -\frac{15}{4}$

○ **C.** $x = -\frac{25}{4}$

○ **D.** $x = \frac{5}{2}$

Answers

1. A
2. B
3. C
4. C
5. A
6. B
7. B
8. C
9. A
10. A
11. B
12. A
13. B
14. B
15. C
16. D
17. A
18. A
19. A
20. A
21. C
22. C
23. A