Algebra 1 Common Assessment Semester 2

Name:_____

Date:_____

Teacher: Wee

Instructions: Write the letter of the best answer on the line next to the question number.

_____ 1. **Which of the following is equal to $\sqrt{50a^6b^7}$?**

A. $5a^3b^3\sqrt{2b}$

B. $5a^2b^3\sqrt{2b}$

C. $10a^3b^3$

D. $5a^3b^3$

_____ 2. Which is the simplified form of the following?

$$\sqrt{18x^9y^4}$$

A. $3x^3y^2$

B. $9x^3y^2$

C. $3x^3y^2\sqrt{2}$

D. $3x^4y^2\sqrt{2x}$

_____ 3. Which is a simplified form of the following expression?

5 · x · x · y · y · 3 · y · y

A. x^5y^3

B. $5x^3y^3$

C. $15x^3y^4$

D. $15x^2y^4$

_____ 4. Which number is the opposite of -78?

    A. -87

    B. $\dfrac{1}{78}$

    C. $\dfrac{-1}{78}$

    D. 78

_____ 5. Which number is the reciprocal of $\dfrac{100}{47}$?

    A. 100

    B. 6

    C. $\dfrac{47}{100}$

    D. $-\dfrac{100}{47}$

_____ 6. The steps Thomas used to solve an equation are shown.

Given: $10 - 2(x - 1) = 8$
Step 1: $8(x - 1) = 8$
Step 2: $x - 1 = 1$
Step 3: $x = 2$

Which statement about the steps Thomas used is true?

    A. There is an error in Step 1.

    B. There is an error in Step 2.

    C. There is an error in Step 3.

    D. Thomas's steps are all correct.

_____ 7. What is the solution for *a* in the inequality?

$$2a - 10 \leq -2(6a + 4)$$

A. $a \geq -\dfrac{9}{5}$

B. $a \leq \dfrac{1}{7}$

C. $a \leq 1$

D. $a \leq \dfrac{9}{7}$

_____ 8. What value of *x* makes the equation below true?

$$15 - 5(2x - 7) = x - 4 + 3x$$

A. $x = -\dfrac{8}{7}$

B. $x = \dfrac{6}{7}$

C. $x = \dfrac{27}{7}$

D. $x = \dfrac{33}{8}$

_____ 9. If $-5x + 7 = 2x - 3$, then what is *x*?

A. $-\dfrac{4}{3}$

B. $-\dfrac{4}{7}$

C. $\dfrac{10}{7}$

D. $\dfrac{10}{3}$

_____ 10. Which of the following would solve the equation below for x in one step?

$$10 = x - 15$$
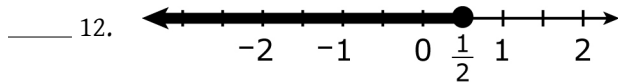
A. Adding 15 to both sides of the equation

B. Adding 10 to both sides of the equation

C. Subtracting 15 from both sides of the equation

D. Subtracting 10 from both sides of the equation

_____ 11. The equation of a line is shown below.

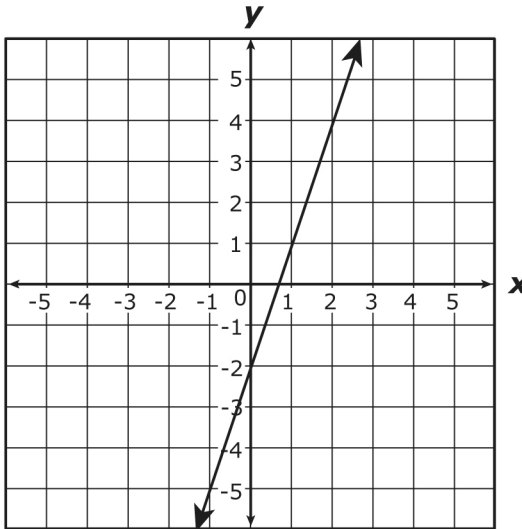$$18y - 2x + 64 = -8$$

What is the y-intercept of the line?

A. -36

B. -4

C. 4

D. 36

_____ 12.

Which inequality is represented by the graph above?

A. $x < \dfrac{1}{2}$

B. $x > \dfrac{1}{2}$

C. $x \le \dfrac{1}{2}$

D. $x \ge \dfrac{1}{2}$

_____ 13.

Which equation <u>best</u> represents the line graphed above?

A. $y = 3x + 2$

B. $y = -3x + 2$

C. $y = \dfrac{1}{3}x - 2$

D. $y = 3x - 2$

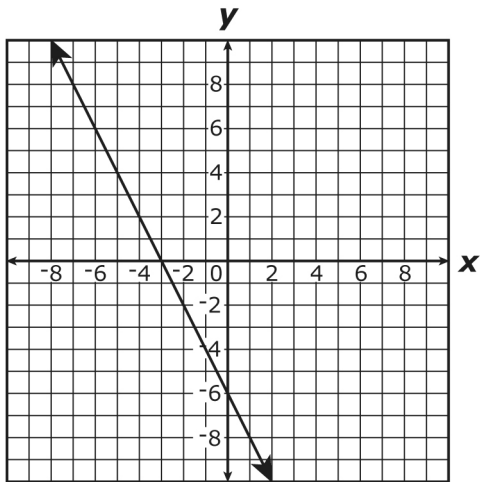_____ 14. What is the y-intercept of the graph of the following equation?

$x + 4y = 12$

A. 12

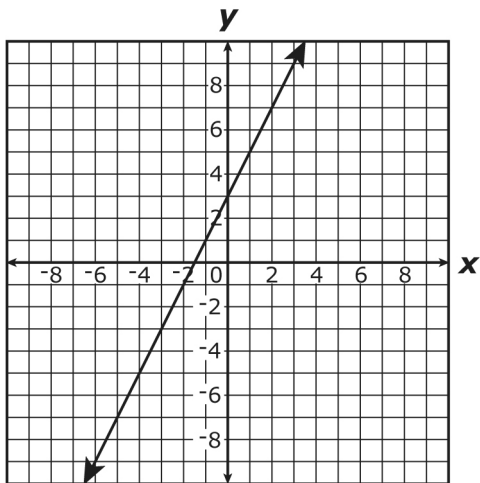B. 6

C. 3

D. $-\dfrac{1}{4}$

_____ 15. Which graph best represents the following equation?
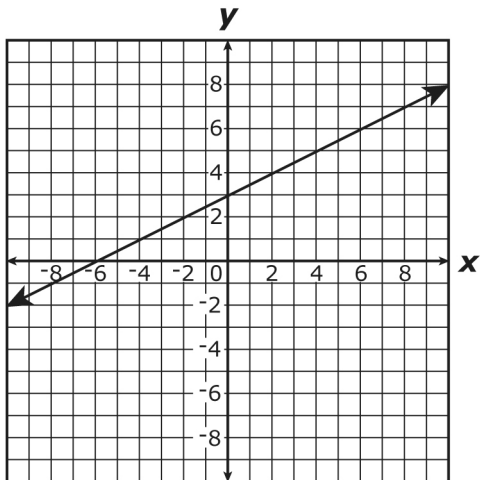
$$x - 2y = -6$$

A.

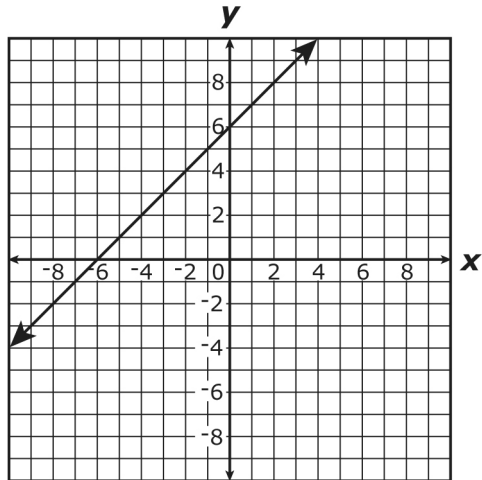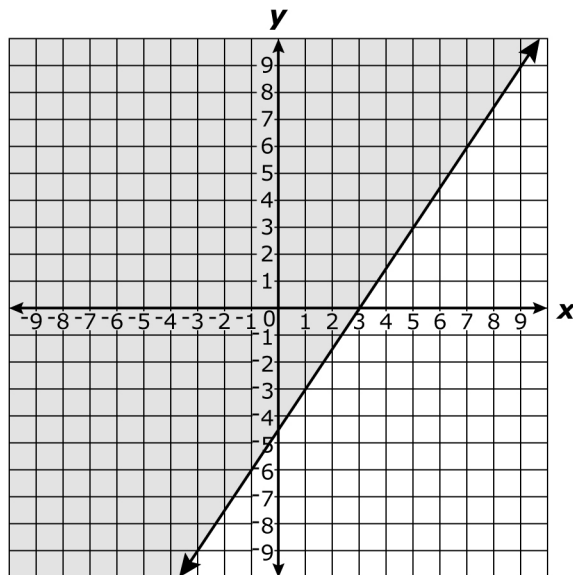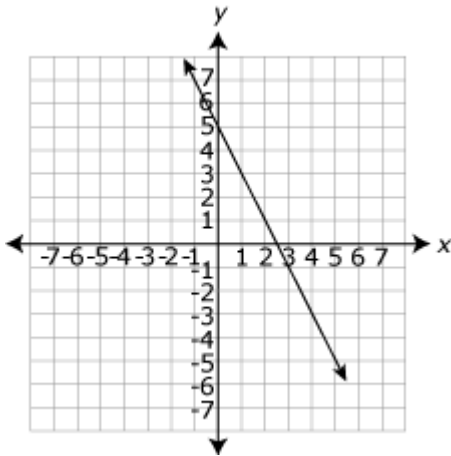B.

C.

D.

_____ 16. Diane plotted a linear inequality on a graph as shown below.

Which linear inequality did she plot?

A. $3x - 2y < 9$

B. $3x - 2y \leq 9$

C. $3x - 2y \geq 9$

D. $3x - 2y > 9$

_____ 17. The graph of the equation $y = -2x + 5$ is shown below.

Which point is **not** a solution of the equation?

A. (-1, 7)

B. (0, 5)

C. (2, 0)

D. (4, -3)

_____ 18. Which equation is true for all of the values in the table below?

x	y
8	26
21	78
15	54

A. $y = 3x + 15$

B. $y = 4x - 6$

C. $y = 5x - 14$

D. $y = 6x + 6$

_____ 19. Which equation best represents the line that passes through (0, 2) and has a slope of 5?

A. $y = 5x + 2$

B. $y = 2x + 5$

C. $y = \dfrac{1}{5}x + 2$

D. $y = x + 2$

_____ 20. Hannah noticed that the number of dog barks that are heard in her video game is dependent on the number of cars that drive down a neighborhood street in the game.

Number of Dog Barks in Terms of Number of Cars

Number of Cars	Number of Dog Barks
5	15
10	25
15	35
20	45
25	55
30	65
35	75

Which equation best represents the number of dog barks (b) in terms of the number of cars that drive down the street (c) during the game?

A. $b = 2c + 2$

B. $b = 2c + 5$

C. $c = 5b + 2$

D. $c = 2b + 5$

_____ 21. solve:

-2x + y = 4

 3x + y = 9

A. (-1, 2)

B. (-5, -6)

C. (1, 6)

D. (13/5, 46/5)

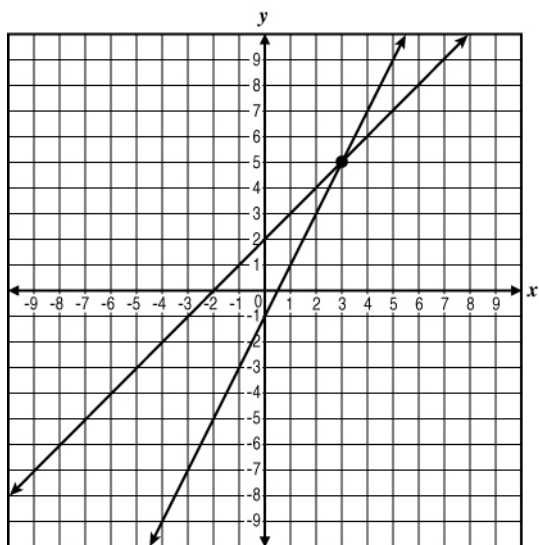_____ 22. Solve by substitution:

$$2x + y = 1$$
$$x = 8 - 3y$$

A. (1, -1)

B. (-1, 3)

C. (-13/4, 15/2)

D. answer not given

_____ 23. The system of equations $\begin{array}{l} y - x = 2 \\ y = 2x - 1 \end{array}$ is graphed below.

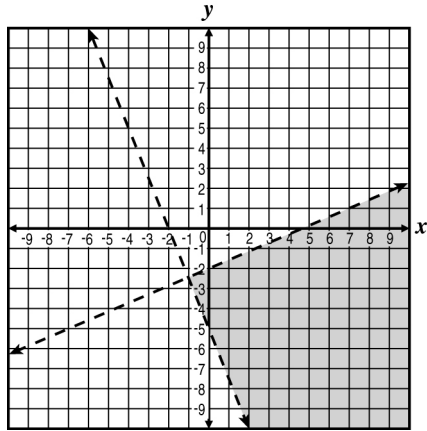What is the solution of this system of equations?

A. $(5,\ 3)$

B. $(3,\ 5)$

C. $(0,\ 2)$

D. $(-2,\ 0)$

_____ 24. Which graph best represents the solution to the system of linear inequalities below?
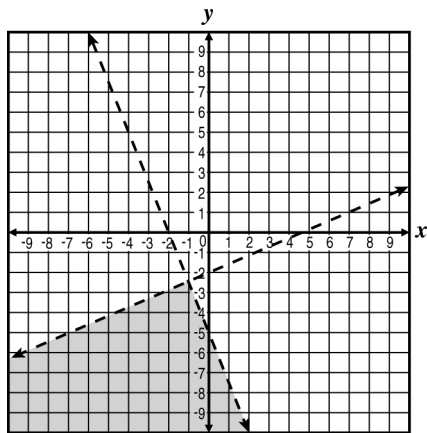
$$3x - 7y > 21$$
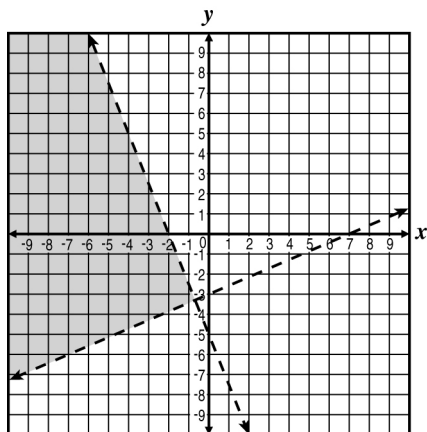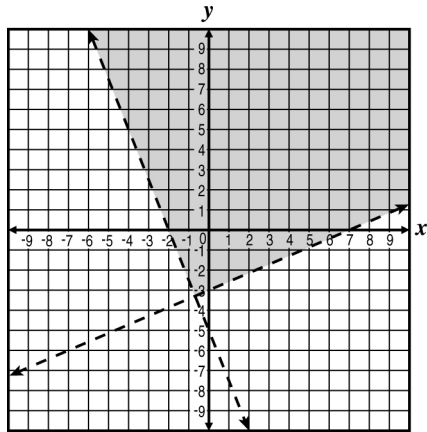$$5x + 2y < -10$$

A.

B.

C.

D.

_____ 25. Which expression is equivalent to the following expression?

$$\frac{x^6 y^4}{x^3 y^8}$$

A. $x^3 y^4$

B. $x^9 y^{12}$

C. $\dfrac{x^2}{y^2}$

D. $\dfrac{x^3}{y^4}$

_____ 26. **Simplify the expression.**

$$3x^3 - 4x^2 + 2x + 1 - \left(3x^3 + 4x^2 - 2x + 1\right)$$

A. 0

B. $-8x^2 + 4x$

C. $6x^3 + 2$

D. $6x^3 - 8x^2 + 4x + 2$

_____ 27. If $3x^2 + 6x - 5$ is subtracted from $5x^2 + 3x + 7$, which expression is the difference?

A. $2x^2 - 3x + 12$

B. $2x^2 + 9x - 2$

C. $2x^2 - 3x - 2$

D. $2x^2 + 9x + 12$

_____ 28. Which of the following expressions is equivalent to $3m(m - 2) - (m^2 + 1)$?

A. $2m^2 - 1$

B. $2m^2 - 6m - 1$

C. $4m^2 - 6m + 1$

D. $4m^2 - 1$

_____ 29. Luis designed a poster with a 12- by 18-inch rectangular picture surrounded by a border. The border is x inches wide on all four sides as shown.
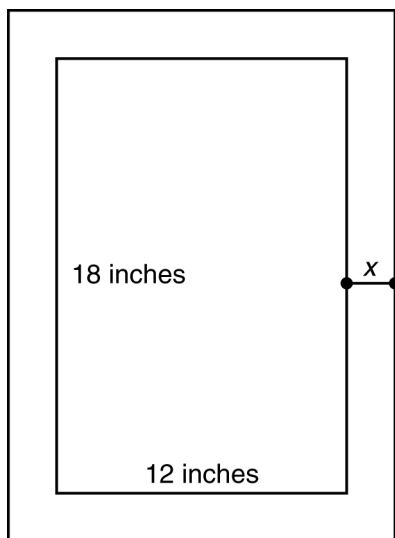
The area of the poster can be represented by the expression $(2x + 12)(2x + 18)$. Which expression is equivalent to the area of the poster in square inches?

A. $4x^2 + 216$

B. $4x^2 + 24x + 216$

C. $4x^2 + 34x + 216$

D. $4x^2 + 60x + 216$

_____ 30. $4a^2 - 4ab + b^2$

    A.   (4a + b)(1a - b)

    B.   (2a - b)(2a + b)

    C. $(2a - b)^2$

    D. $(2a + b)^2$

    E.   answer not given

_____ 31.   Which is a factored form of the expression below?

$$3y^2 + 10y - 8$$

    A.   (3y + 2)(y − 4)

    B.   (y − 2)(3y − 4)

    C.   (3y − 2)(y + 4)

    D.   (y − 2)(3y + 4)

_____ 32.   **Which is a factor of $2x^2 + 5x + 2$?**

    A. $x + 1$

    B. $x + 2$

    C. $2x + 2$

    D. $2x + 5$

_____ 33.   What is the greatest common factor of the following expression?

$$-10a^2b^2 + 5a^2b - 15ab^2 + 3ab$$

    A. $5ab$

    B. ab

    C. $15a^2b^2$

    D. $3ab$

_____ 34. Which expression shows $\dfrac{x^2 - 9}{x^2 + 6x + 9}$ reduced completely?

    A. $\dfrac{-1}{6x}$

    B. $\dfrac{-3}{2x + 3}$

    C. $\dfrac{x - 3}{x + 3}$

    D. $\dfrac{(x - 3)(x - 3)}{(x + 3)(x + 3)}$

_____ 35. Which fraction is equal to $\dfrac{y^2 + 11y + 30}{y^2 + 19y + 70}$ in simplest form?

    A. $\dfrac{6}{14}$

    B. $\dfrac{41}{89}$

    C. $\dfrac{11y + 30}{19y + 70}$

    D. $\dfrac{y + 6}{y + 14}$

_____ 36. What is the solution set for the following equation?

$x^2 - 6x + 9 = 16$

    A. $\{-7,\ 1\}$

    B. $\{-1,\ 7\}$
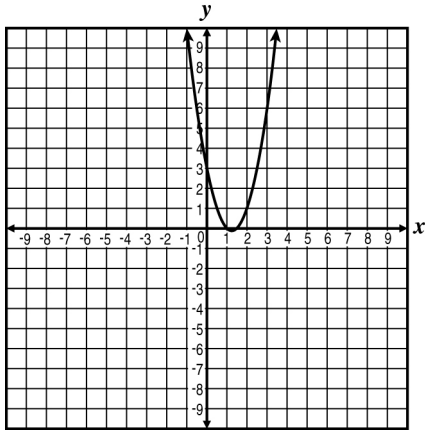
    C. $\{3,\ 4\}$

    D. $\{3\}$

_____ 37.   What number should be added to both sides of the equation to complete the square?

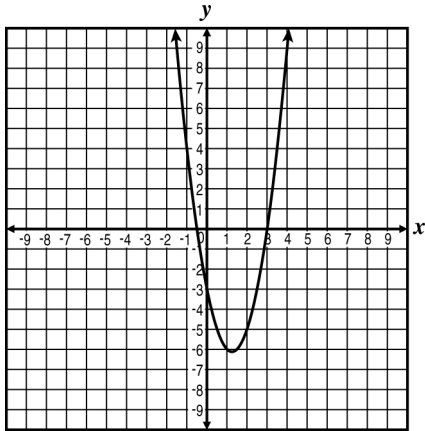$x^2 + 10x = 3$

A.   5

B.   25

C.   50

D.   100

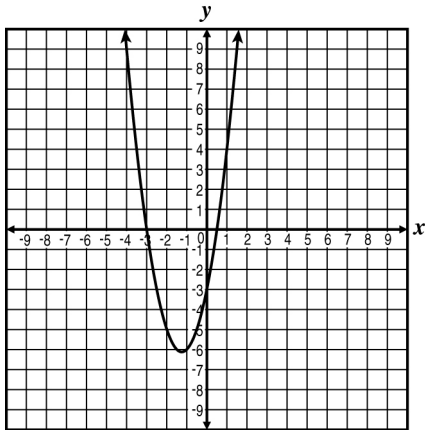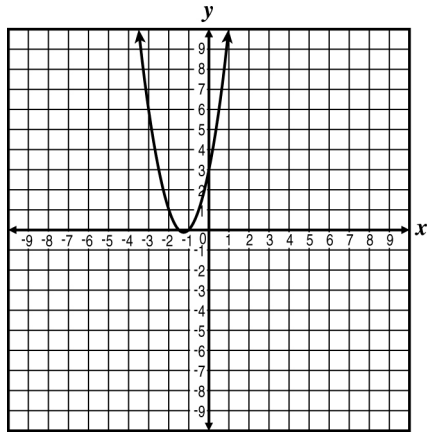_____ 38. Which graph best represents $y = 2x^2 - 5x - 3$?

A.

B.

C.

D.

_____ 39. What are the roots of $3x^2 - 5x - 6 = 0$?

A. $\dfrac{-5 \pm \sqrt{97}}{6}$

B. $\dfrac{5 \pm \sqrt{97}}{3}$

C. $\dfrac{5 \pm \sqrt{43}}{6}$

D. $\dfrac{5 \pm \sqrt{97}}{6}$

_____ 40. What are the x-intercepts of the graph of $y = x^2 + 4x - 12$?

A. $(-6,\ 0)$ and $(-2,\ 0)$

B. $(-6,\ 0)$ and $(2,\ 0)$

C. $(6,\ 0)$ and $(-2,\ 0)$

D. $(6,\ 0)$ and $(2,\ 0)$