

Practice Final Algebra 1

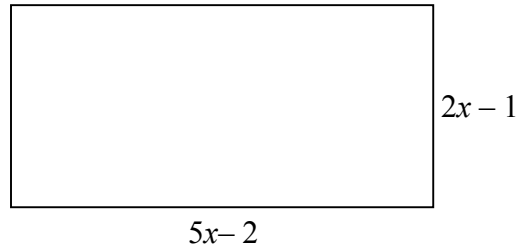
Multiple Choice:

- Use the distributive property to rewrite the expression $-3(5 - 2x)$ without parenthesis:
a. $-15 - 6x$ b. $6x - 15$ c. $6x + 15$ d. $-8 - 5x$
- Simplify: $(8x^2 - 6x + 10) - (3x^2 - 7x - 4)$
a. $11x^2 + x - 14$ b. $5x^2 + x + 14$ c. $5x^2 - 13x + 6$ d. $5x^2 - x + 14$ e. none of these

Problems 3 and 4 refer to the picture to the right:

- Find the perimeter of the rectangle:

- $7x - 3$
- $14x - 6$
- $10x^2 - 14x + 2$
- $10x^2 + 2$



- Find the area of the rectangle:

- $10x^2 + 2$ b. $14x - 6$ c. $10x^2 - 9x + 2$ d. $10x^2 + 9x + 2$
- Simplify: $(5x^2z^2)(8xz^3)$
a. $13x^3z^5$ b. $40x^2z^6$ c. $13x^2z^5$ d. $40x^3z^5$ e. $40x^3z^6$
 - Simplify: $(2x^4)^3$
a. $6x^{12}$ b. $8x^7$ c. $8x^{12}$ d. $2x^{12}$ e. $6x^7$
 - Simplify: $\frac{2p^5z^2}{8p^3z^4}$
a. $\frac{p^2}{4z^2}$ b. $\frac{p^2}{6z^2}$ c. $\frac{p^{15}}{4z^8}$ d. $\frac{p^{15}}{6z^8}$ e. $4p^2z^2$
 - Factor: $20abc + 15a^2c - 5ac$
a. $5a(4bc + 3a - 1)$ b. $a(20abc + 15ac - 5ac)$ c. $10ac(2b + 5a - 5c)$ d. $5ac(4b + 3a - 1)$
 - Factor: $3x^2 + 2x - 8$
a. $(3x + 2)(x - 4)$ b. $(3x - 2)(x + 4)$ c. $(3x - 4)(x + 2)$ d. $(3x + 4)(x - 2)$
 - Simplify: $\frac{a - 3}{a^2 - 7a + 12}$
a. $\frac{1}{a - 4}$ b. $\frac{-1}{a^2 - 7 + 4}$ c. $a - 4$ d. $-6a + 4$

11. Simplify: $\frac{x^3 + x^2 - 6x}{x^2 + 13x + 30}$

a. $\frac{x-2}{x+10}$

b. $\frac{x}{(x+10)(x+10)}$

c. $\frac{x+x-x}{13+5} = \frac{x}{18}$

d. $\frac{x(x-2)}{x+10}$

12. Solve: $7a - 5 = 2(2a - 13)$

a. $a = \frac{5}{7}$ and $a = \frac{13}{2}$

b. $a = -\frac{31}{3}$

c. $a = -7$

d. $a = 7$

13. Solve: $\frac{1}{2} - x = \frac{x}{3} - 2$

a. $\frac{15}{2}$

b. $\frac{8}{15}$

c. $\frac{7}{5}$

d. $\frac{15}{8}$

14. Solve: $\frac{x-1}{3} + 2 = \frac{x+5}{4} - 1$

a. 8

b. 3

c. -17

d. -30

15. Solve for y: $3x - 2y = 8$

a. $y = \frac{3}{2}x + 4$

b. $y = -\frac{3}{2}x + 4$

c. $y = \frac{3}{2}x - 4$

d. $y = -\frac{3}{2}x - 4$

16. Solve: $\frac{3}{x+6} = \frac{2}{x-4}$

a. $x = 4$

b. $x = 24$

c. $x = 10$

d. $x = -4$

17. $-5x - 7 \leq -3(x+1) + 2$

a. $x \leq -6$

b. $x \geq -6$

c. $x \leq -3$

d. $x \geq -3$

18. Solve: $\frac{-11b - 35}{4} < -4b + 5$

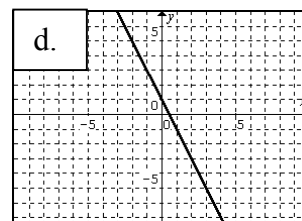
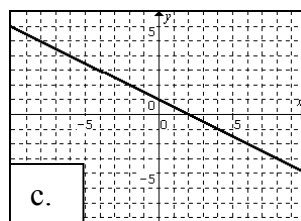
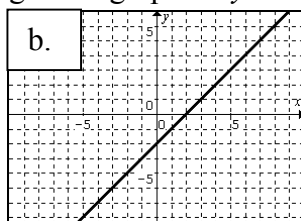
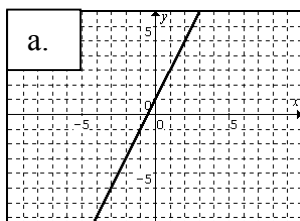
a. $b < 11$

b. $b < -3$

c. $b > 11$

d. $b > -3$

19. Which of the following is the graph of $y = -2x + 1$



20. A phone plan has a flat rate of \$5.75 each month plus seven cents per minute. The equation that finds the monthly cost of the phone plane is

a. $c = 7m + 5.75$

b. $c = 5.75m + 7$

c. $c = 0.07m + 5.75$

d. $c = 5.75m + 0.07$

21. Given $2x + 3y = 12$, what is the slope?

- a. $-\frac{2}{3}$ b. $\frac{2}{3}$ c. 4 d. 2

For questions 22-23, use the equation provided.

Given: $3x - 2y + 30 = 0$

22. The x -intercept is

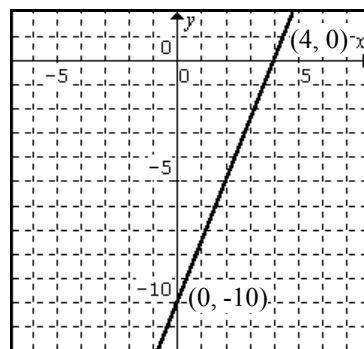
- a. (0, 15) b. (-10, 0) c. (10, 0) d. (30, 0)

23. The y -intercept is

- a. (0, -30) b. (0, 30)
c. (0, -15) d. (0, 15)

24. Given the graph to the right, identify the equation of the line.

- a. $10x + 4y = 40$
b. $5x + 2y = 20$
c. $5x - 2y = 20$
d. $4x + 10y = -100$



25. The equation of the line that passes through the points (6, 9) and (10, 3) is

- a. $y = \frac{3}{2}x$ b. $y = \frac{2}{3}x + 3$ c. $y = -\frac{2}{3}x + 15$ d. $y = -\frac{3}{2}x + 18$

26. A line has a slope of $\frac{2}{5}$ and goes through the point (15, 7). Which of the following points is also on the line?

- a. (-5, -1) b. (20, 60) c. (-15, -7) d. none of the points are on the line.

27. Which of the following points is *not* on the line $2x - 3y = -12$

- a. (-9, -2) b. (-6, 0) c. (0, -4) d. all of the points are on the line

28. Which of the following could be the equation of a line parallel to the line $y = 4x - 7$.

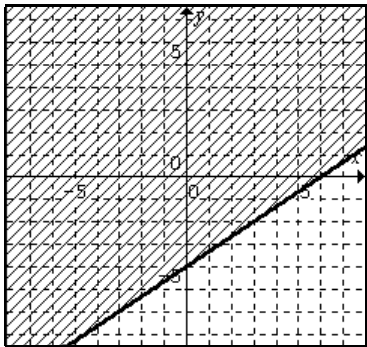
- a. $y = \frac{1}{4}x - 7$ b. $y = 4x + 3$ c. $y = -4x + 3$ d. $y = -\frac{1}{4}x - 7$

29. Which of the following is parallel to $3x - 4y = 12$?

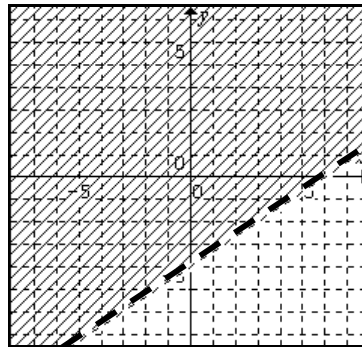
- a. $y = \frac{3}{4}x + 2$ b. $y = -\frac{3}{4}x - 3$ c. $y = \frac{4}{3}x - 5$ d. $y = -\frac{4}{3}x$

30. Which of the following represents $2x - 3y > 12$?

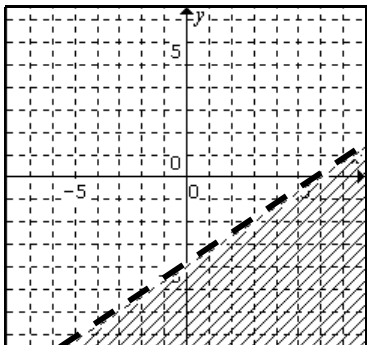
a.



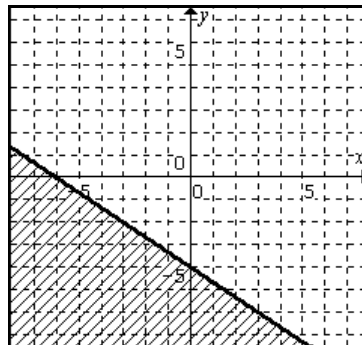
b.



c.



d.



31. Which set of equations will generate the graph to the right?

a)

$$y = \frac{1}{2}x - 3$$

$$y = -2x + 2$$

b)

$$y = \frac{1}{2}x + 2$$

$$y = -2x - 3$$

c)

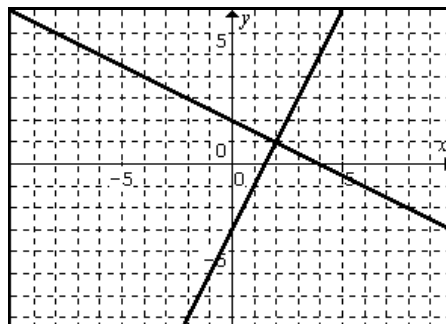
$$y = -\frac{1}{2}x + 2$$

$$y = 2x - 3$$

d)

$$y = -\frac{1}{2}x + 2$$

$$y = 2x + 3$$



32. Solve: $\begin{cases} y = 2x + 11 \\ y = \frac{3}{2}x + 9 \end{cases}$

a. (-5, 1)

b. (-4, 3)

c. (7, 25)

d. none of these

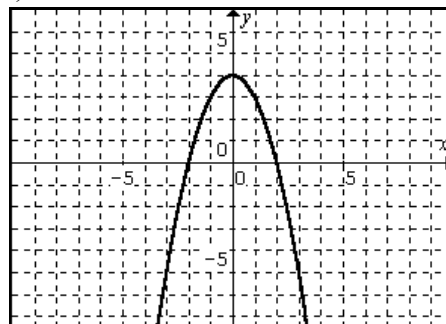
33. The graph to the right is:

a. $y = x^2 + 4$

b. $y = x^2 - 4$

c. $y = -x^2 + 4$

d. $y = -x^2 - 4$



34. Airfares for flights from Sacramento to San Diego cost \$180 for first class and \$120 for coach. A flight has 52 passengers who paid a total of \$7260. How many first class passengers were on the flight?

a. 40

b. 26

c. 20

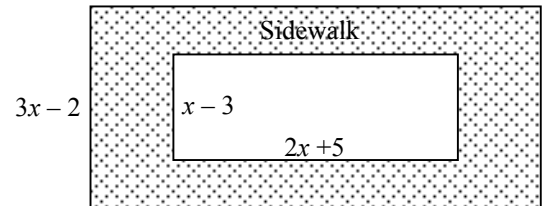
d. 17

35. Joe Casey, the star of the Placer County All-Star baseball team, has hit 11 home runs in the team's first thirty games. If he continues this pace how many home runs will he hit in a 162 game season? How many home runs is he expected to hit?
- a. 162 b. 442 c. 59 d. 71

36. Gina is 5 years older than her brother Juan. Their father is 10 years older than twice Gina's age. The sum of all their ages is 105. Find the ages of each person.
- | | | | |
|------------|------------|-----------|------------|
| a. Juan 24 | b. Juan 20 | c. Juan 7 | d. Juan 11 |
| Gina 29 | Gina 25 | Gina 12 | Gina 16 |
| Father 52 | Father 60 | Father 32 | Father 42 |

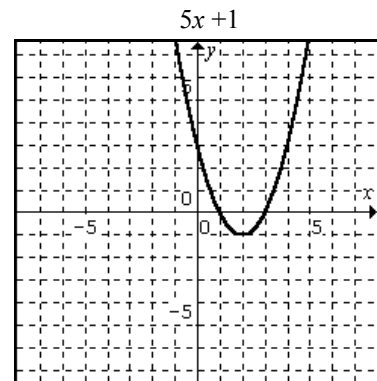
37. A sidewalk surrounds a playground as shown. Write the area as an algebraic expression.

- a. $17x^2 - 8x - 17$ b. $17x^2 - 6x - 17$
c. $13x^2 - 6x + 13$ d. $13x^2 + 8x + 13$



38. What is one possible quadratic represented by the graph to the right?

- a. $y = (x - 1)(x - 3)$ b. $y = (x + 1)(x + 3)$
c. $y = (x - 2)(x - 2)$ d. $y = (x + 2)(x + 2)$



39. Solve: $\frac{5}{x+1} = \frac{x}{4}$

- a. $x = \sqrt{19}$ b. $x = -4$ or $x = 5$
c. $x = 4$ or $x = -5$ d. no solution

40. Which of the following is a solution to $x^2 - 7x = 5$

- a. $\frac{7 + \sqrt{29}}{2}$ b. $\frac{-7 - \sqrt{29}}{2}$ c. $\frac{-7 + \sqrt{69}}{2}$ d. $\frac{7 - \sqrt{69}}{2}$

NAME: _____

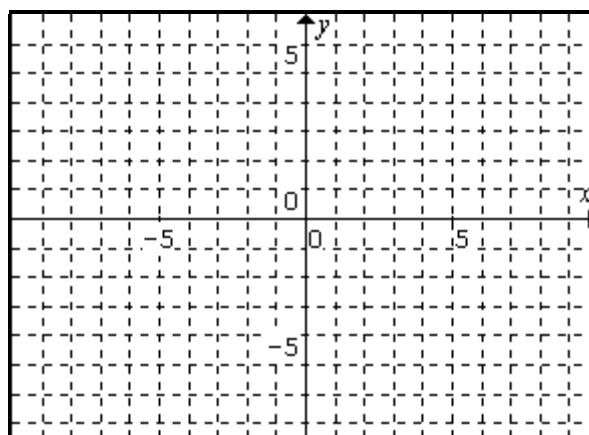
Algebra Final - Free Response

1. Solve:

a) $5x - 2(x - 3) = 18 + x$

b) $x - \frac{2}{3} = \frac{x}{2} - 3$

2. Graph $y = -\frac{2}{3}x + 6$. State the x and y -intercepts and label them on the graph.



3. The Earth club found a stash of aluminum cans that were collected last year. They decide to collect more cans until they get 200 lbs of aluminum. After 5 days they had 55 pounds of aluminum. After 12 days they had 97 pounds. Assume they collect the same amount every day.

a) Find the equation that determines the number of pounds collected based on the day.

b) When will the earth club reach their goal?

4. A football game has an attendance of 1200. Adult tickets cost \$5 and student tickets cost \$2. The total tickets receipts were \$3660. The visiting team is entitled to half of the adult ticket sales. How much money should be given to the visiting team?

5. Doug, Vlade, and Chris are all Sacramento Kings fans and want to go as many games as possible. They discover that they have three different ways to purchase tickets. Plan A is to purchase season tickets for \$1,000. Plan B is to buy individual tickets to \$40 each. Plan C is to pay a \$400 fee and then purchase tickets for only \$20 each. Doug thinks he will attend 35 games, while Vlade knows he can only go to 10. Chris thinks he can attend 25 games.

a) Find equations for each plan that will determine the cost based on the number of games attended.

b) For how many games will plan B and plan C be equivalent? Solve this algebraically.

c) Use a graph to show these guys when the following plans are best and which plan each should get.

