

Putnam County Algebra Exit Exam (Sample)

Select the **best** answer for each question.

- ## 1. Simplify

$$-8 - |-6| \cdot 3 + (-4)$$

Simplify. Your answer should contain only positive exponents.

- $$2. \quad n^{-4} \cdot 2n^3 \cdot 4n^2$$

- A. $3n^9$
 - B. n
 - C. $8n$
 - D. 4

- $$3. r^3 \cdot r^2$$

- A. $4r^3$ C. $6r^8$
 B. r^5 D. $16r^5$

- $$4. \quad 4x \cdot 2x^{-2}$$

- A. $\frac{8}{x}$
 B. $6x^8$
 C. $\frac{12}{x}$
 D. $16x^3$

5. Which statement is FALSE?

- A. An algebraic expression contains at least one variable and at least one mathematical operation.
 - B. A numerical expression contains only numbers and mathematical operations.
 - C. A variable stands for a known number: its value is always the same.
 - D. An equation is a sentence that contains an equal sign.

6. Choose the correct expression for “the sum of two and the quotient of r and s .

A. $2 + \frac{r}{s}$

C. $\frac{r}{2+s}$

B. $\frac{r+2}{s}$

D. $\frac{r}{2} + s$

7. Simplify $(a-4b)(a+4b)$

A. $a^2 - 8ab + 16b$

C. $a^2 + 16b^2$

B. $a^2 - 16b^2$

D. $a^2 + 8ab - 16b^2$

8. Factor completely. $3x^2 - 12x^3$

A. $3(x^2 - 4x^3)$

C. $3x^2(-4x)$

B. $3x^2(1 - 4x)$

D. $3x(x - 4)$

9. Simplify the expression. $\frac{3a-4b}{6b} + \frac{a-2b}{6b}$

A. $\frac{2a-3b}{3b}$

C. $\frac{-7ab+a+6b}{3b}$

B. $\frac{2a+b}{2b}$

D. $\frac{a-2b}{6b}$

10. Simplify

$$(3x^2 + 9x + 2) - (-3 + 7x^2)$$

A. $10x^2 + 9x$

C. $10x^2 - 1$

B. $-4x^2 + 9x + 5$

D. $10x^2 + 9x + 5$

11. Simplify

$$\sqrt{45}$$

- A. $5\sqrt{5}$
- B. $3\sqrt{5}$
- C. $4\sqrt{2}$
- D. $9\sqrt{5}$

12. Simplify

$$\sqrt{50}$$

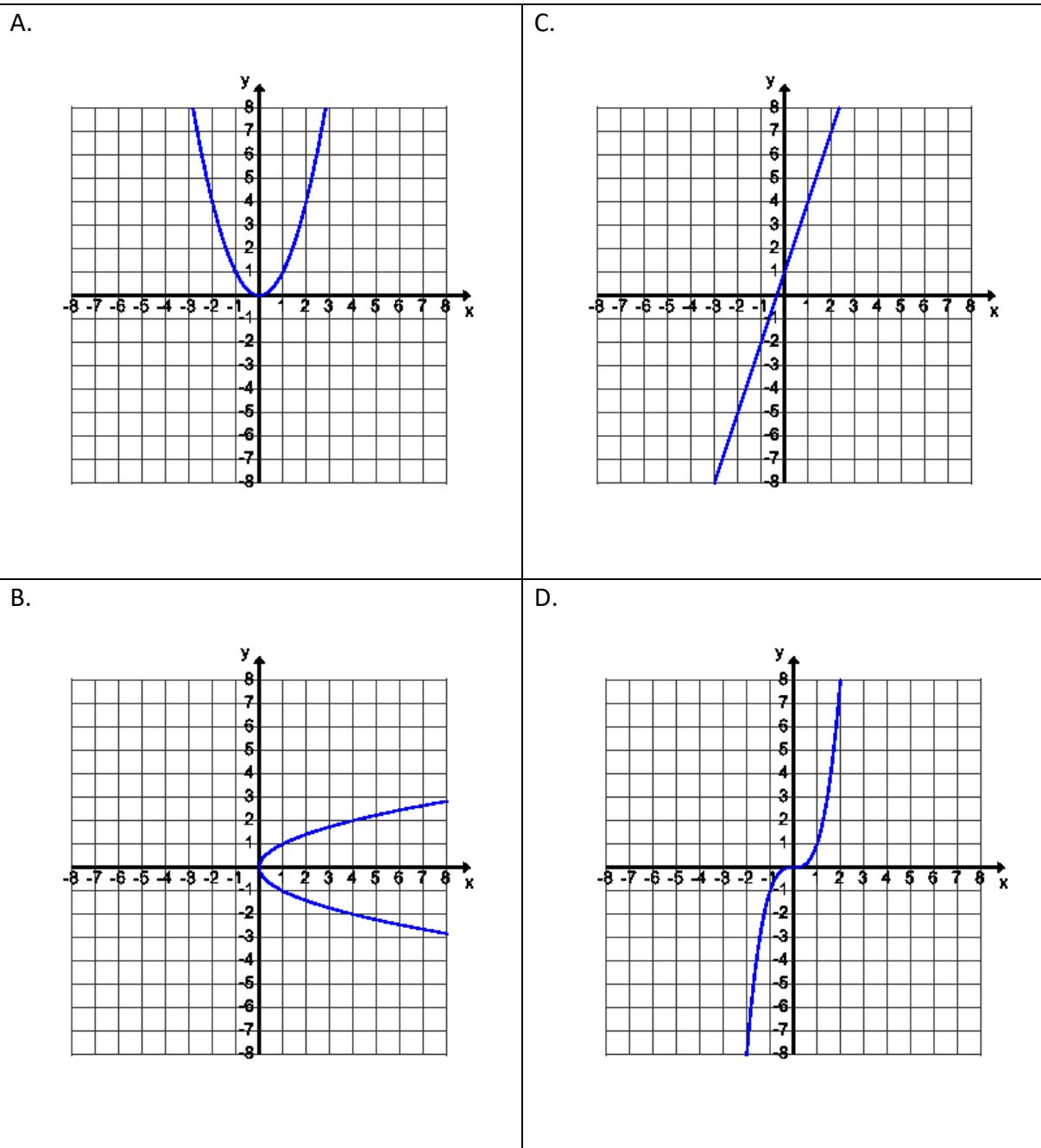
- A. $2\sqrt{3}$
- B. $2\sqrt{5}$
- C. $3\sqrt{5}$
- D. $5\sqrt{2}$

13. Give the degree of the polynomial.

$$5x^2y^3 - 2x^3y^3 + 7x^2 - 7y^3$$

- A. 2
- B. 5
- C. 6
- D. 3

14. Which relation is NOT a function?



15. Give the equation of the line passing through $(1, 5)$ with a slope of -2 .

A. $y + 5 = -2(x - 1)$

C. $y - 2 = -2(x - 5)$

B. $y - 5 = -2(x + 1)$

D. $y - 5 = -2(x - 1)$

16. Given the line $y = 2x + 4$ state the slope of a line that is perpendicular to the given line.

A. $m = -2$

B. $m = -\frac{1}{2}$

C. $m = \frac{1}{2}$

D. $m = 2$

17. Given the line $2x - 3y = 9$ and the point $(4, -1)$, find a line through the point that is parallel to the given line.

A. $y = \frac{2}{3}x - \frac{11}{3}$

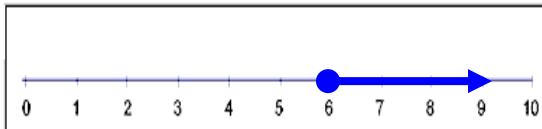
B. $y = \frac{2}{3}x + 5$

C. $y = -\frac{3}{2}x + 5$

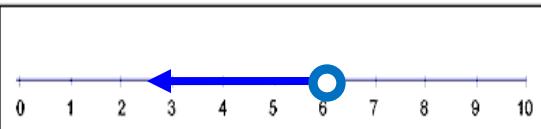
D. $y = -\frac{3}{2}x - 5$

18. Solve this inequality: $2(3x - 2) < 4x + 8$

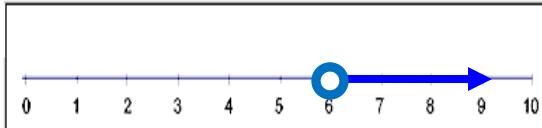
A.



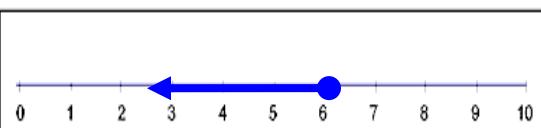
C.



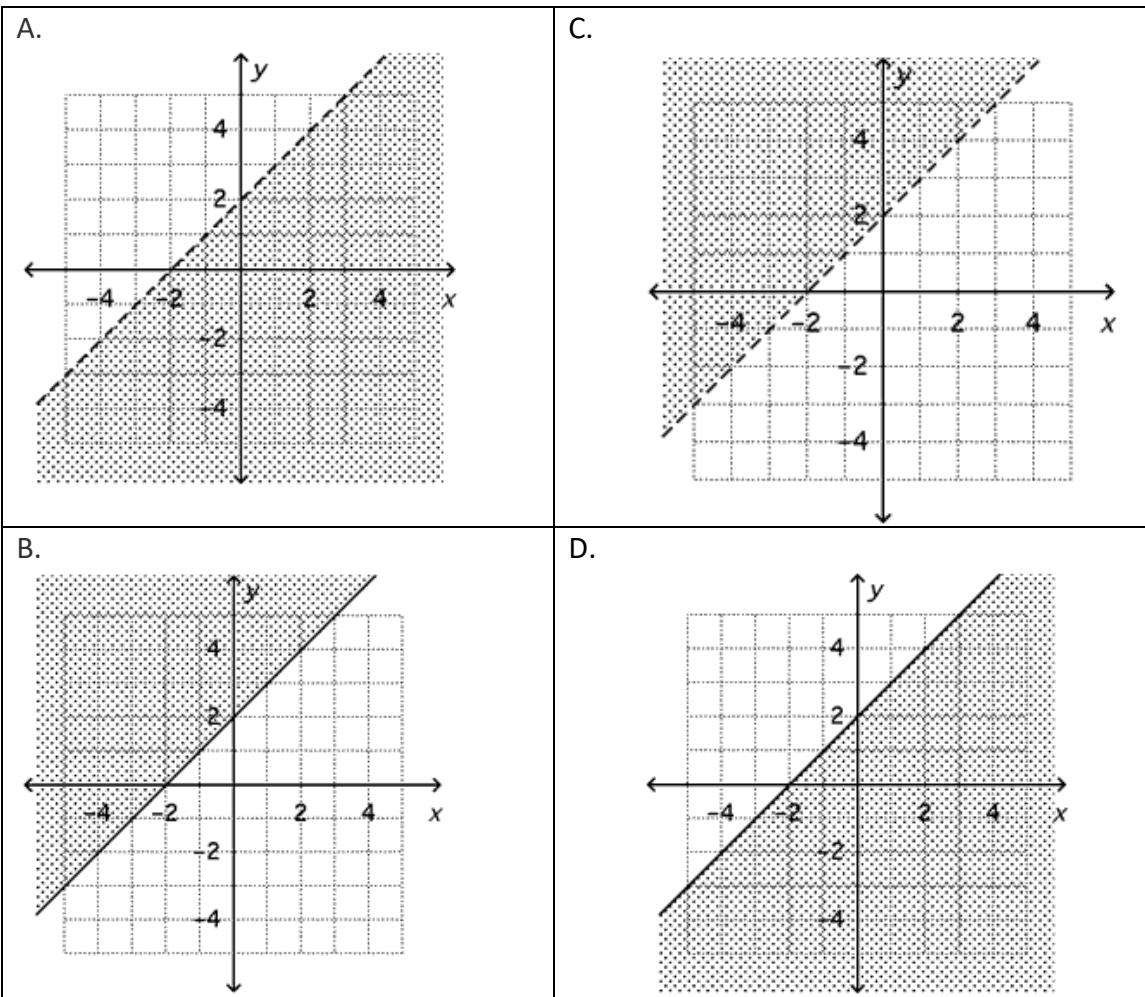
B.



D.



19. Graph the inequality on a coordinate plane $y < x + 2$.



20. James' school is selling tickets to a spring musical. On the first day of ticket sales the school sold 8 senior citizen tickets and 4 student tickets for a total of \$120. The school took in \$59 on the second day by selling 1 senior citizen ticket and 6 student tickets. What is the price each of one senior citizen ticket and one student ticket.

- A. senior citizen ticket: \$9, student ticket: \$6.
- B. senior citizen ticket: \$8, student ticket: \$11.
- C. senior citizen ticket: \$11, student ticket: \$8.
- D. senior citizen ticket: \$14, student ticket: \$12.

21. Using the formula to find the length of the hypotenuse of a right triangle, solve the equation for a (a and b are the lengths of the legs and c is the length of the hypotenuse.)

$$a^2 + b^2 = c^2$$

A. $a^2 + b^2 = c^2$
B. $a = \sqrt{b^2 - c^2}$

C. $a = \sqrt{c^2 - b^2}$
D. $a = c^2 - b$

22. Solve

$$3x + 2 = 8$$

A. $x = 3$
B. $x = \frac{10}{3}$

C. $x = 2$
D. $x = -2$

23. Solve

$$-20.853 = -18.97 + \frac{x}{19.7}$$

A. $x = 26.9$
B. $x = -31$

C. $x = -28$
D. $x = -37.0951$

24. Solve

$$16.3m - 19.8 > -189.32$$

A. $m > -57$
B. $m > -10.4$

C. $m > -26.1$
D. $m > 6.5$

25. Solve

$$x^2 = 20$$

A. $x = \pm 4\sqrt{5}$
B. $x = \pm 2\sqrt{5}$

C. $x = -2\sqrt{5}$

D. no solution

26. Solve

$$x^2 = 16$$

A. $x = 4$
B. $x = -4, x = 4$

C. $x = -4$

D. no solution

27. Solve

$$-2x - 4 = 12$$

A. $x = 8$
B. $x = -8$

C. $x = -4$
D. $x = 4$

28. Solve

$$x^2 + 5x + 4 = 0$$

A. $x = 4, x = 5$
B. $x = 1, x = 4$

C. $x = -1, x = -4$
D. $x = 1, x = -4$

29. Solve

$$x^2 - 8x = 0$$

A. $x = 0$
B. $x = -8$

C. $x = 0, x = -8$
D. $x = 0, x = 8$

30. Solve

$$\begin{cases} -3x + y = 11 \\ -x - 3y = 7 \end{cases}$$

A. $(1, 4)$
B. $(-1, -4)$

C. $(4, 1)$
D. $(-4, -1)$

31. Solve

$$\begin{cases} -3x - 5y = 1 \\ -9x - 15y = 3 \end{cases}$$

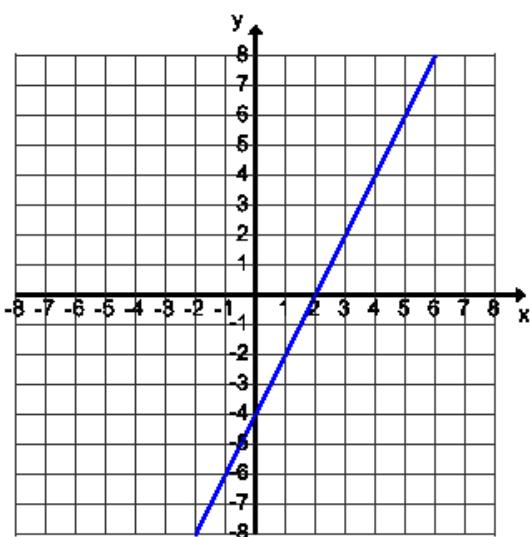
A. $(-9, -15)$
B. No Solutions

C. Infinite Solutions
D. $(-15, -9)$

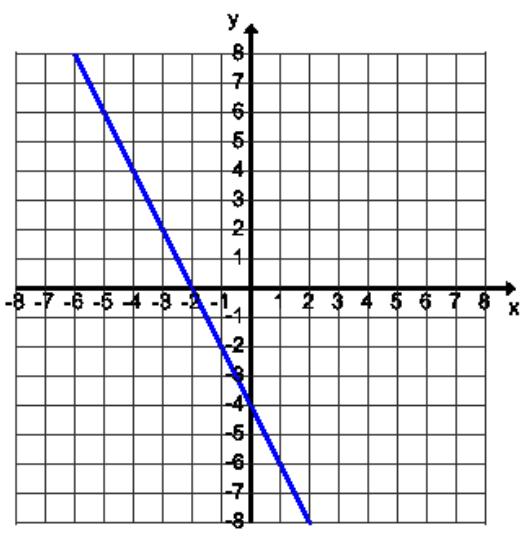
32. Choose the graph of the given function.

$$f(x) = -2x + 4$$

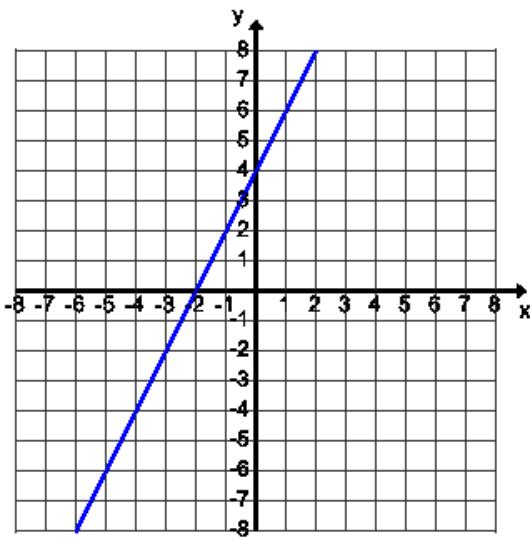
A.



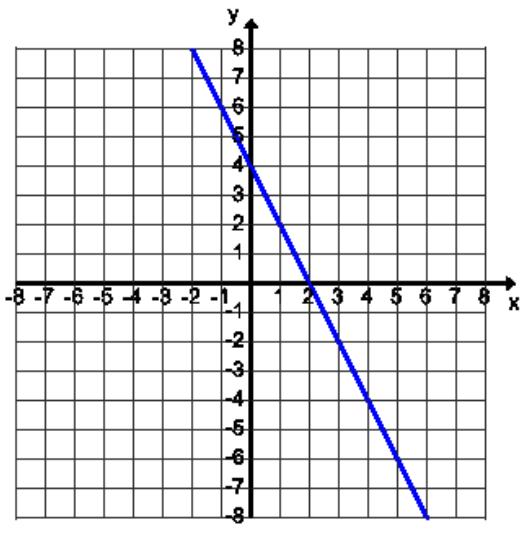
C.



B.



D.



33. Find the slope of the line that contains the points.

(4, -2) and (-5, 7)

A. $m = 1$

B. $m = -\frac{1}{2}$

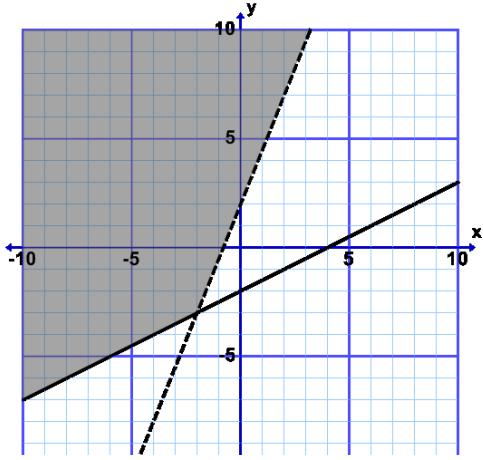
C. $m = -5$

D. $m = -1$

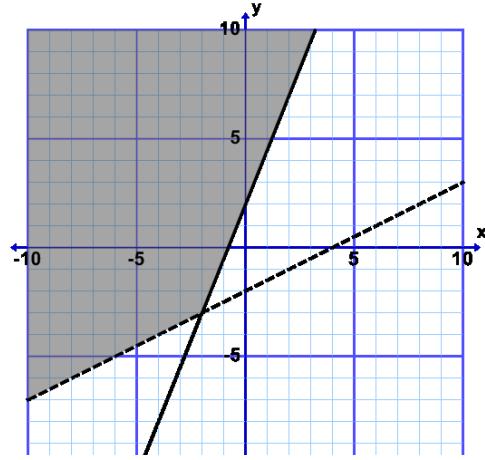
34. Choose the solution to the system of inequalities.

$$\begin{cases} y \geq \frac{5}{2}x + 2 \\ y > \frac{1}{2}x - 2 \end{cases}$$

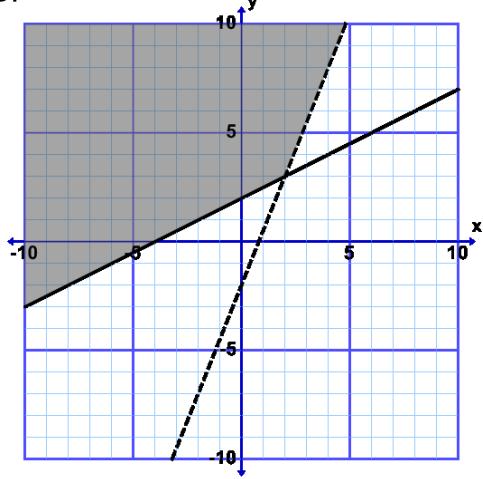
A.



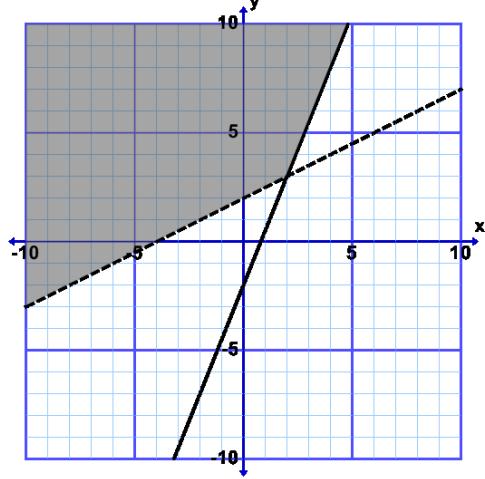
C.



B.



D.



35. Find the mean of the data set. If necessary, round to the nearest tenth.

$$13.3, 16.1, 11.9, 19.8, 16.5$$

A. 15.5

C. 16.5

B. 15

D. 14.5

36. Does the given function have a maximum or a minimum?

$$f(x) = -x^2 - 2x + 2$$

Rectangles With a Certain Fixed Perimeter

M Length (m)	Area (m ²)
0	0
1	7
2	12
3	15
4	16
5	15
6	12
7	7
8	0

x

imum

38. Which equation describes the table?

A. $A = L(8 - L)$

B. $A = L(16 - L)$

C. $A = L(4 - L)$

D. $A = L(L - 8)$

37. Write and solve an inequality. An airline requires carry-on luggage to weigh at most 50 pounds. Your suitcase currently weighs 15 pounds. How many pounds p are available for you to fill your suitcase with other items?

A. $p + 15 \leq 50 ; p \leq 35$

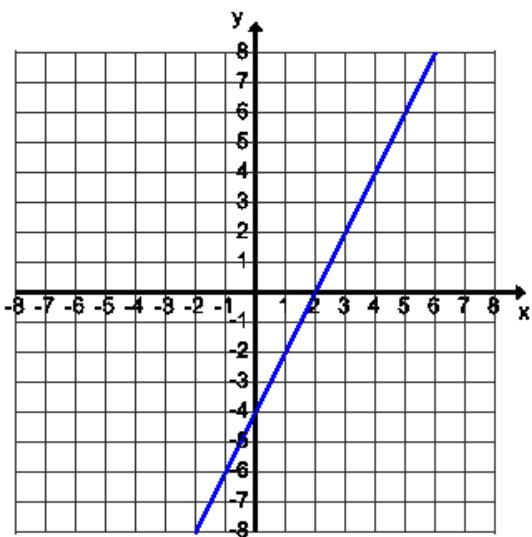
C. $50 - p \leq 15 ; p \leq 35$

B. $p + 15 \geq 50 ; p \geq 35$

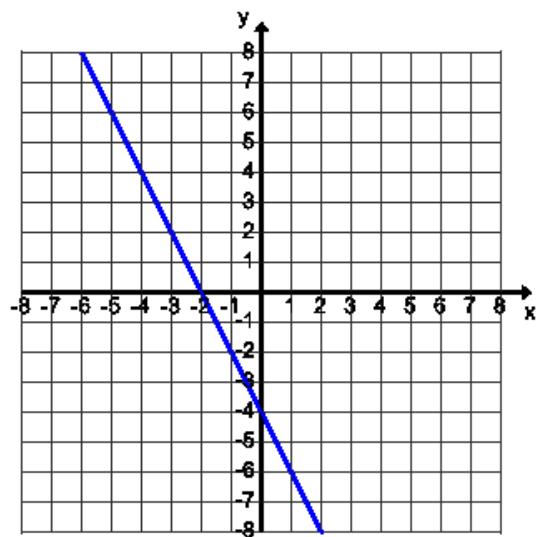
D. $p - 15 \leq 50 ; p \geq 65$

39. Choose the graph of the line with a negative slope.

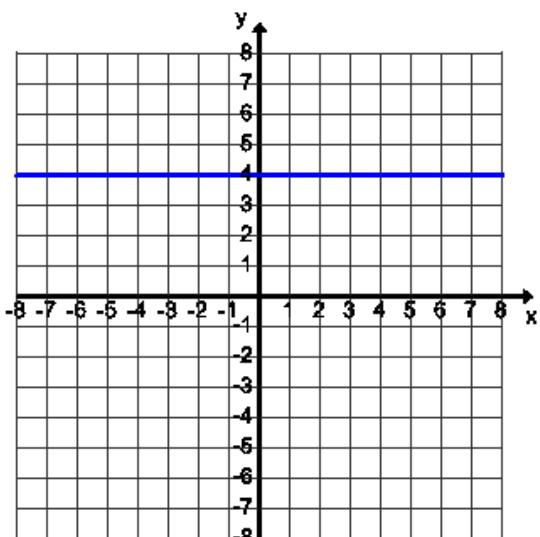
A.



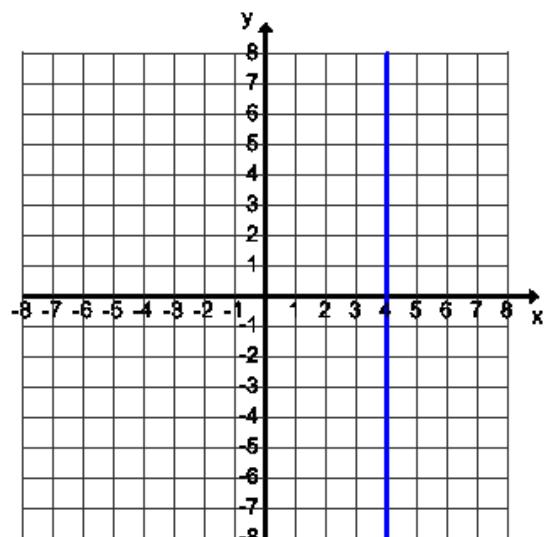
C.



B.

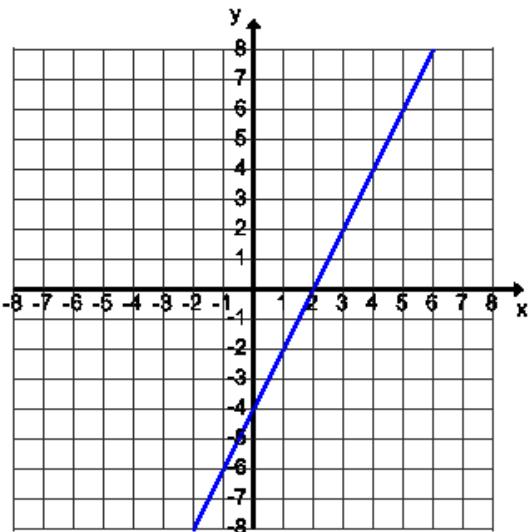


D.

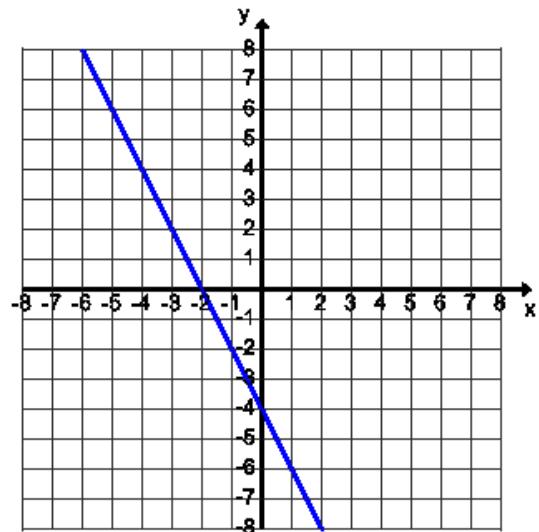


40. Choose the graph of the line with zero slope.

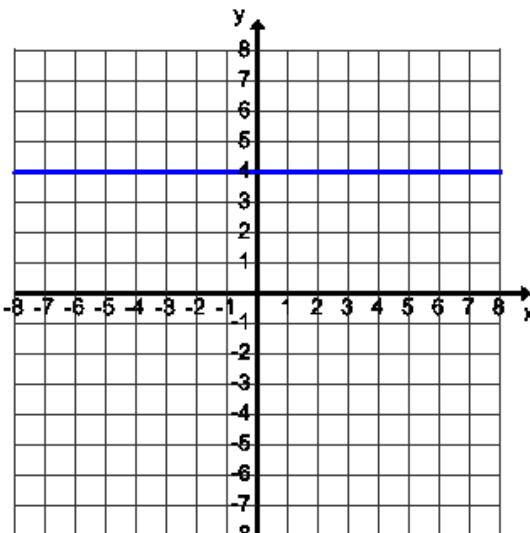
A.



C.



B.



D.

