

This assignment represents all of the Algebra concepts that will not be covered in the Honors curriculum. Any student coming into Honors Algebra II is expected to understand these concepts and display mastery of them. I will check this assignment for completion on the first day of class and there will be a test on the second day over this material.

**Please show your work on a separate piece of paper.**

**Simplify each expression.**

1.  $(-3x^2 + 2x) - (5x + 2)$

2.  $(x - 2)(x^2 + 4)$

3.  $(2x + 1)^2$

**Solve for x.**

4.  $(3x - 2) + 1 = 5 - (x + 4)$

5.  $3(x - 2) + 2x = 5(x + 1)$

6.  $12 - 3(2w + 1) = 7w - 3(7 + w)$

**Solve each inequality. Graph the solution on a number line.**

7.  $57 - 4x \geq 13$

8.  $2(x - 3) + 7 < 21$

9.  $17 - 2y \leq 5(7 - 3y) - 15$

**Factor each expression completely.**

10.  $3x^2 + 12x$

11.  $x^2 - 7x + 12$

12.  $x^2 - 49$

13.  $x^2 - 5x - 24$

14.  $x^2 - 16x + 64$

15.  $9 - 4x^2$

16.  $x^2 + 10x - 75$

17.  $12x^2 - 75$

18.  $3x^2 + 24x + 45$

**Graph each equation on a coordinate plane.**

19.  $y = 3x - 2$

20.  $y < -2x + 1$

21.  $2x + 3y = 12$

22.  $x = -3$

23.  $y \leq 2$

**Solve each system.**

24.  $\begin{cases} y = 2x + 5 \\ x + 3y = -6 \end{cases}$

25.  $\begin{cases} 2a + 3b = 12 \\ 5a - b = 13 \end{cases}$

26.  $\begin{cases} 2m = -4n - 4 \\ 3m + 5n = -3 \end{cases}$

**Simplify each radical expression. Decimals are not allowed.**

27.  $-\sqrt{16}$     28.  $\sqrt{\frac{4}{9}}$     29.  $\sqrt{80}$     30.  $\sqrt{\frac{9}{5}}$     31.  $\sqrt{252}$

**Simplify each expression.**

32.  $(2x)^3$     33.  $(-4x^2)(-2x^5)$     34.  $(3s^2)^4(2st)^2$     35.  $(h^4k^5)^0$     36.  $\left(\frac{2x^2y^3}{3y^5z^2}\right)^2$

**Linear Functions**

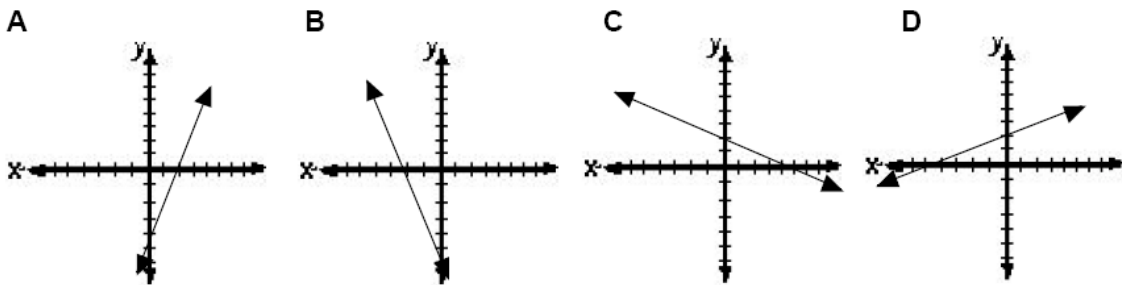
1. Which line has a y-intercept of -5?

- A  $12x + 5y = 0$
- B  $5x + 12y = -60$
- C  $5x - 12y = 25$
- D  $12x - 5y = -60$

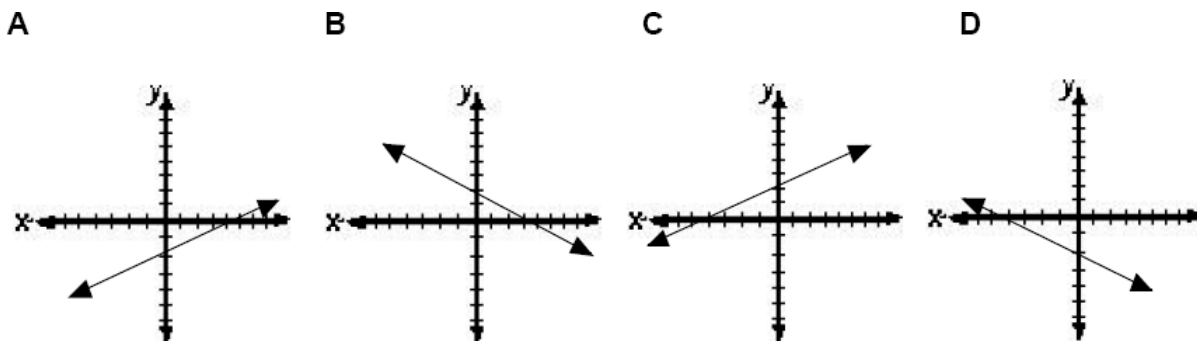
2. Which line has an x-intercept of -4?

- A  $12x - 7y = -48$
- B  $12x + 7y = 28$
- C  $7x - 12y = -48$
- D  $7x + 12y = 0$

3. Which line best represents the graph of  $5x - 2y = 10$  ?

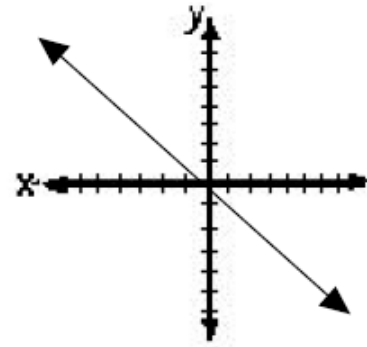


4. Which line best represents the graph of  $x - 2y = -4$  ?



5. Which of the following best represents the graphed line?

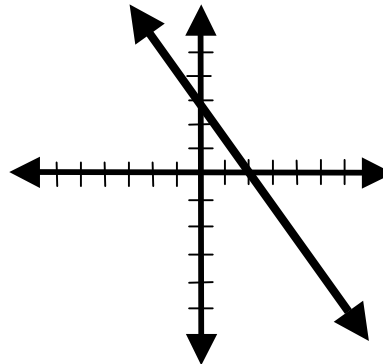
- A  $y = x - 1$
- B  $y = x + 1$
- C  $y = -x$
- D  $y = x$



6. Graph the following inequality:  $-2x - 4y > -6$

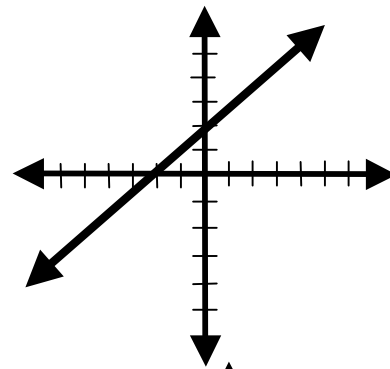
7. Which is most likely the equation of the line graphed below?

- A  $y = -\frac{2}{3}x + 3$
- B  $y = -\frac{3}{2}x + 3$
- C  $y = -\frac{2}{3}x + 1$
- D  $y = -\frac{3}{2}x + 1$



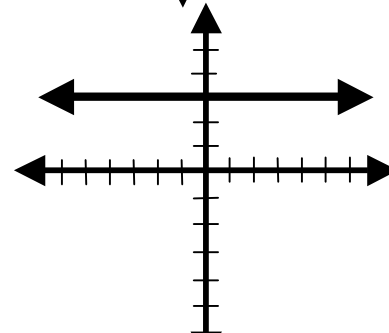
8. Which is most likely the equation of the line graphed below?

- A  $y = -x + 2$
- B  $y = 2x + 2$
- C  $y = x + 2$
- D  $y = -2x + 2$



9. Which is most likely the equation of the line graphed below?

- A  $y = 3$
- B  $x = 3$
- C  $y = -3$
- D  $x = -3$



10. What is the equation of the line through the point (0, -3) and having a slope of  $\frac{2}{5}$ ?

**A**  $y = -\frac{5}{2}x + \frac{15}{2}$

**B**  $y = \frac{2}{5}x - 3$

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

**D**  $y = \frac{5}{2}x + 15/2$

11. What is the equation of the line through the point (5, -2) and having a slope of  $-\frac{4}{5}$ ?

**A**  $y = -\frac{5}{4}x + 2$

**B**  $y = -\frac{4}{5}x + 2$

**C**  $y = -\frac{4}{5}x + \frac{4}{5}$

**D**  $y = \frac{5}{4}x + \frac{4}{5}$

12. Find the equation of the line through the point (1, 2) and having a slope of 2.

13. What is the equation of the line through the R and S? **R (2, -5)** **S (6, 3)**

14. What is the equation of the line through the R and S? **R (-1, 7)** **S (-4, 9)**

15. What is the equation of the line through the R and S? **R (-2, -3)** **S (4, -3)**

16. What is the equation of the line through the R and S? **R (-6, 2)** **S (-6, -3)**

