

Name _____

Compare and Order Numbers

1. Order the following from greatest to least.

$$10.21, 10\frac{3}{7}, 11.3, 11\frac{2}{5}, 110\%, 10.2$$

- A. 110% , 10.2 , 10.21 , $10\frac{3}{7}$, 11.3 , $11\frac{2}{5}$
- B. 11.3 , $11\frac{2}{5}$, 10.21 , $10\frac{3}{7}$, 10.2 , 110%
- C. $11\frac{2}{5}$, 11.3 , $10\frac{3}{7}$, 10.21 , 10.2 , 110%
- D. $11\frac{2}{5}$, 11.3 , 110% , $10\frac{3}{7}$, 10.21 , 10.2
-

Compare and Order Numbers

2. Select the correct symbol.

$$\frac{\pi}{3} ? \frac{5}{3}$$

- A. $>$
- B. $=$
- C. $<$

Compare and Order Numbers

3. Order the following list of numbers from least to greatest.

$$\frac{58}{5}, 11.5, \sqrt{131}, 11.\bar{3}$$

- A. $11.5, \frac{58}{5}, 11.\bar{3}, \sqrt{131}$
 - B. $\sqrt{131}, \frac{58}{5}, 11.5, 11.\bar{3}$
 - C. $11.\bar{3}, 11.5, \sqrt{131}, \frac{58}{5}$
 - D. $11.\bar{3}, \sqrt{131}, 11.5, \frac{58}{5}$
-

Simplify Square Roots

4. Simplify.

$$\sqrt{605}$$

- A. $55\sqrt{11}$
- B. $5\sqrt{11}$
- C. $11\sqrt{5}$
- D. $121\sqrt{5}$

Simplify Square Roots

5. Simplify.

$$\sqrt{80}$$

- A. $5\sqrt{4}$
 - B. $16\sqrt{5}$
 - C. $20\sqrt{4}$
 - D. $4\sqrt{5}$
-

Simplify Square Roots

6. Simplify.

$$\sqrt{243}$$

- A. 81
- B. $9\sqrt{3}$
- C. $81\sqrt{2}$
- D. 9

GCF & LCM of Monomials

7.

$$39uv^2w^4 \quad 33u^3vw^3$$

What is the greatest common factor (GCF) of the monomials shown above?

- A. $3u^3v^2w^4$
 - B. $429u^4v^3w^7$
 - C. $3uvw^3$
 - D. $429uvw^3$
-

GCF & LCM of Monomials

8.

$$21x^2y^2 \quad 77x^4y^2$$

What is the greatest common factor (GCF) of the monomials shown above?

- A. $7x^4y^2$
- B. $231x^4y^2$
- C. $231x^6y^4$
- D. $7x^2y^2$

GCF & LCM of Monomials

9. Look at the two monomials below.

$$12x^4y^3z^2 \quad 20x^3y^4z$$

What is the least common multiple (LCM) of the monomials shown above?

- A. $60x^7y^7z^3$
- B. $4x^7y^7z^3$
- C. $4x^3y^3z$
- D. $60x^4y^4z^2$

Simplify & Evaluate Expressions

10. Simplify the following expression.

$$7^0$$

- A. 0
 - B. $\frac{1}{7}$
 - C. 1
 - D. 7
-

Simplify & Evaluate Expressions

11. Evaluate the following expression when $n = 2$.

$$|4n - 5| + |-2|$$

- A. 5
 - B. 1
 - C. 3
 - D. 11
-

Simplify & Evaluate Expressions

12. Simplify: $|150 - 10 \cdot 14| - 9|18 - 18|$

- A. -10
- B. -170
- C. 170
- D. 10

Estimation

13. Peter's car can travel about 29 miles per gallon of gas. If the car has used 24 gallons of gas, approximately how far has Peter driven?

- A. 5
 - B. 1.21
 - C. 696
 - D. 53
-

Estimation

14. Fred is picking watermelons for a summer job. On Monday, Fred picked 356.17 pounds of watermelon. The lightest watermelon weighed 13.18 pounds, and the heaviest watermelon weighed 15.5 pounds. Which is the best estimate of the number of watermelons Fred picked on Monday?

- A. 23 watermelons
 - B. 153 watermelons
 - C. 307 watermelons
 - D. 25 watermelons
-

Estimation

15. A lumber company is able to clear about 1 acre of dense forest each day. Assuming that, on average, each acre of forest contains 319.3 large sized trees, what is a good estimate of the number of large trees that the company could clear in 7 days?

- A. 2,100 trees
- B. 3,600 trees
- C. 4,500 trees
- D. 6,000 trees

Polynomial Expressions

16. Simplify: $(8x^2 + 2x + 5) + (3x^2 + 7x - 2)$

- A. $11x^2 + 5x - 3$
 - B. $11x^2 + 5x + 3$
 - C. $11x^2 + 9x + 3$
 - D. $5x^2 + 9x + 7$
-

Polynomial Expressions

17. Simplify: $(6x^3 + 2x^2 + 7) + (4x^3 - 4x - 2)$

- A. $2x^3 + 2x^2 - 4x + 9$
 - B. $10x^3 - 4x - 5$
 - C. $10x^3 + 2x^2 - 4x - 9$
 - D. $10x^3 + 2x^2 - 4x + 5$
-

Polynomial Expressions

18. Simplify: $(9x^2 + 6x - 3) - (4x^2 + 4x - 9)$

- A. $13x^2 + 2x + 12$
- B. $13x^2 + 2x + 6$
- C. $5x^2 + 10x + 6$
- D. $5x^2 + 2x + 6$

Factor Algebraic Expressions

19. Factor the following expression completely.

$$x^4 - 81$$

- A. $(x - 3)(x^3 + 27)$
 - B. $(x^2 - 9)(x^2 + 9)$
 - C. $(x - 3)(x + 3)(x^2 + 9)$
 - D. $(x - 3)(x + 3)(x - 3)(x + 3)$
-

Factor Algebraic Expressions

20. Factor the following expression completely.

$$3x^2 - 3$$

- A. $3(x - 1)^2$
 - B. $(3x + 1)(x - 1)$
 - C. $3(x^2 - 1)$
 - D. $3(x + 1)(x - 1)$
-

Factor Algebraic Expressions

21. Factor the polynomial below.

$$x^2 + 10x + 25$$

- A. $2x^2 + 25$
- B. $(x + 10)^2$
- C. $x^2 + 25$
- D. $(x + 5)^2$

Rational Algebraic Expressions

22. Simplify the following expression.

$$\frac{3xy^2 - 9x^2y + 3x^2y^2}{x^2y^2}$$

A. $3xy^2 - 9x^2y + 2x^2y^2$

B. $\frac{3}{y} - \frac{9}{x} + 3$

C. $\frac{3}{x} - \frac{9}{y} + 3$

D. $3x - 9y + 3$

Rational Algebraic Expressions

23. Simplify the following expression.

$$\frac{2x^9 - 18x^{18}}{x^5 - 9x^{14}}$$

A. $2x^9$

B. $4x^4$

C. $-2x^9$

D. $2x^4$

Rational Algebraic Expressions

24. Simplify the following expression.

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

- A. $x - 7$
 - B. $x + 7$
 - C. $x - 9$
 - D. $x + 9$
-

Linear Equations

25. Erica went shopping for new clothes for school. She bought a pair of jeans for \$59.36 and several shirts for \$12.04 each. If x represents the number of shirts she bought, which of the following equations should be used to find y , the total cost of Erica's shopping trip?

- A. $x = \$12.04y + \59.36
- B. $x = \$59.36y + \12.04
- C. $y = \$12.04x + \59.36
- D. $y = \$59.36x + \12.04

Linear Equations

26.

Solve for x .

$$2(6x - 10) = 16x$$

- A. $x = 5$
 - B. $x = -\frac{1}{3}$
 - C. $x = 3$
 - D. $x = -5$
-

Linear Equations

27. A company manufactures and sells video games. A survey of video game stores indicated that at a price of \$83 each, the demand would be 400 games, and at a price of \$43 each, the demand would be 1,600 games. If a linear relationship between price and demand exists, which of the following equations models the price-demand relationship?

(Let x represent the price per video game and y represent the demand.)

- A. $y = -30x + 2,090$
- B. $y = 30x - 2,090$
- C. $y = 30x$
- D. $y = -30x + 2,890$

Systems of Linear Equations

28.

Use elimination to find the solution to the system of equations.

$$7x + 4y = 20$$

$$4x + 5y = 25$$

- A. $x = 0, y = 5$
- B. $x = -4, y = \frac{41}{5}$
- C. $x = -\frac{15}{4}, y = 8$
- D. $x = 3, y = -\frac{1}{4}$

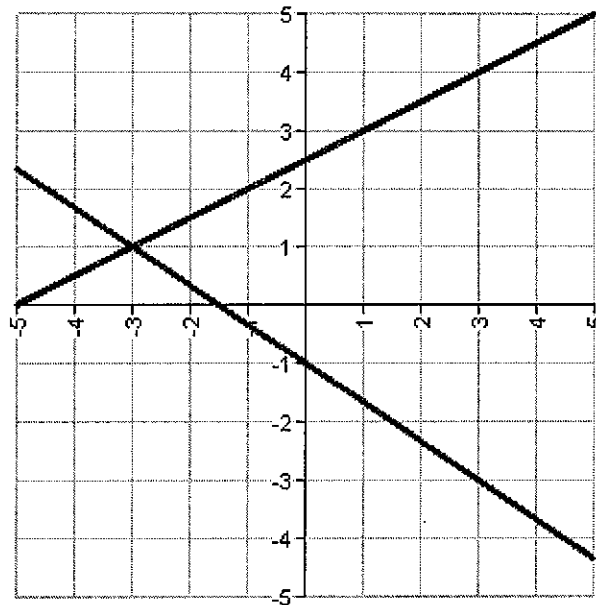
Systems of Linear Equations

29.

$$-x + 2y = 5$$

$$6x + 9y = -9$$

The system of equations above is graphed



Find the solution to the system.

- A. $x = 3, y = 4$
- B. $x = 3, y = -3$
- C. $x = 0, y = -1$
- D. $x = -3, y = 1$

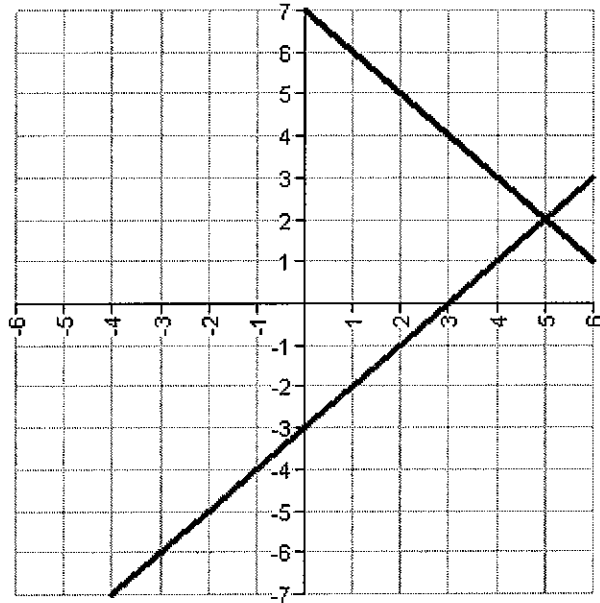
Systems of Linear Equations

30. The following system of equations is graphed below.

$$-4x - 4y = -28$$

$$-2x + 2y = -6$$

Find the solution to the system.



- A. $x = 6, y = 2$
- B. $x = 5, y = 3$
- C. $x = 2, y = 5$
- D. $x = 5, y = 2$

Linear Inequalities

31. Solve the following inequalities.

$$80 < 10(x + 1) < 170$$

- A. $9 < x < 18$
 - B. $7 < x < 18$
 - C. $7 < x < 16$
 - D. $9 < x < 16$
-

Linear Inequalities

32. Solve the following compound inequality.

$$-23 < 5x + 2 < 27$$

- A. $-6 < x < 5$
- B. $x < 5$
- C. $-5 < x < 6$
- D. $-5 < x < 5$

Linear Inequalities

33. Solve the following compound inequality.

$$4x + 4 \leq 0 \text{ OR } 5x - 2 > 33$$

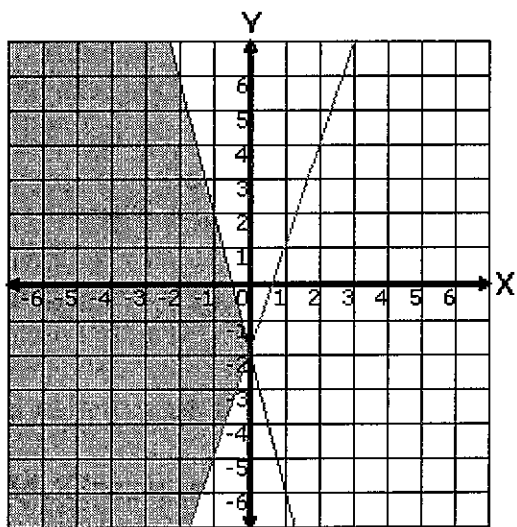
- A. $x \leq -1$
- B. $x \leq -2$ OR $x > 8$
- C. $-1 \leq x < 7$
- D. $x \leq -1$ OR $x > 7$

Systems of Linear Inequalities

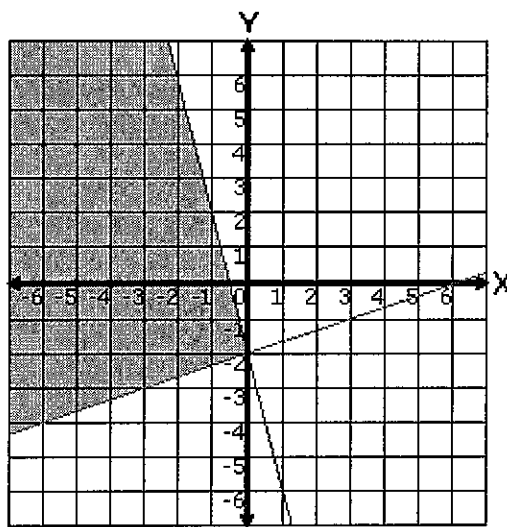
34. Graph the following system of inequalities.

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

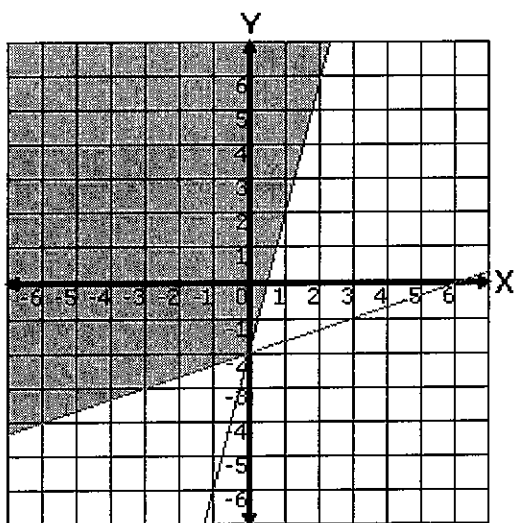
$$y \leq -4x - 2$$



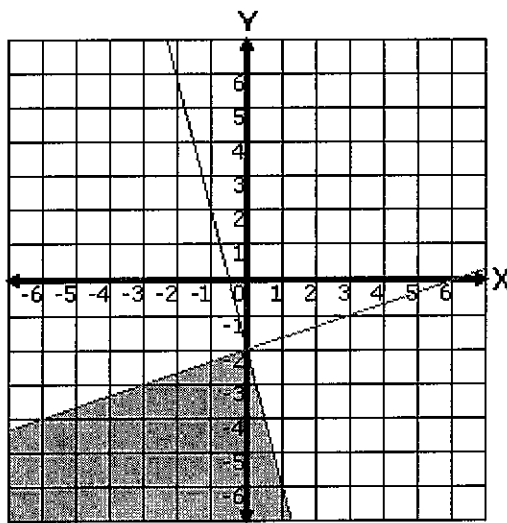
W.



X.



Y.

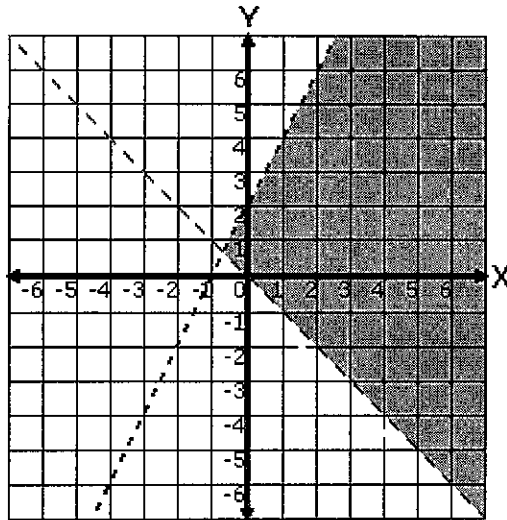


Z.

- A. X
- B. W
- C. Z
- D. Y

Systems of Linear Inequalities

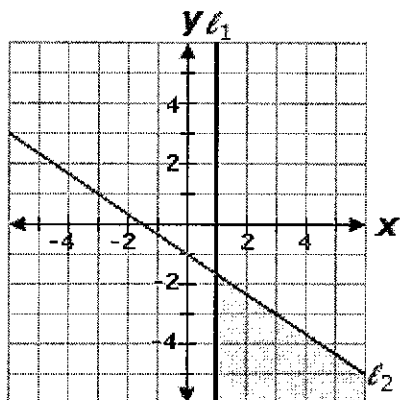
35. Choose the system of inequalities that best matches the graph below.



- A. $y < 2x + 2$
 $y < x$
- B. $y < 2x$
 $y \leq x$
- C. $y \leq x - 2$
 $y > -x$
- D. $y < 2x + 2$
 $y > -x$

Systems of Linear Inequalities

36. Which system of inequalities is represented by the graph below?



A.
$$\begin{cases} y > 1 \\ y < -\frac{3}{2}x - 1 \end{cases}$$

B.
$$\begin{cases} y \leq 1 \\ y \geq -\frac{3}{2}x - 1 \end{cases}$$

C.
$$\begin{cases} x > 1 \\ y < -\frac{2}{3}x - 1 \end{cases}$$

D.
$$\begin{cases} x \geq 1 \\ y \leq -\frac{2}{3}x - 1 \end{cases}$$

Answers

1. C
2. C
3. D
4. C
5. D
6. B
7. C
8. D
9. D
10. C
11. A
12. D
13. C
14. D
15. A
16. C
17. D
18. D
19. C
20. D
21. D
22. C
23. D
24. D
25. C
26. D
27. D
28. A
29. D
30. D
31. C
32. D
33. D
34. A
35. D
36. D