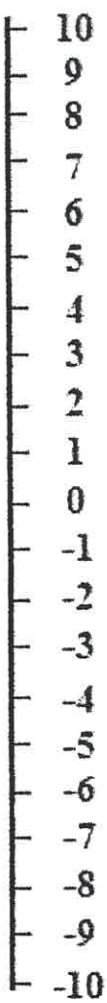
# ALGEBRA I

## Topic #1 Operations with Signed Numbers

When you take your quiz, you will not be allowed the use of a calculator. If you need assistance, use the vertical number lines on each page and not a calculator to complete these problems. Note, you can also extend the number line if needed.

**Adding and Subtracting Integers**

$8 + 12 =$ $\quad -2 + 13 =$ $\quad -8 + -15 =$




$-5 + 3 =$ $\quad 10 + -2 =$ $\quad -2 + 3 =$

$-3 + 2 =$ $\quad -14 + 3 =$ $\quad 10 + 7 =$

$-15 + -2 =$ $\quad -8 + -4 =$ $\quad 15 + -4 =$

$13 - 8 =$ $\quad 13 - -2 =$ $\quad 1 - 5 =$

$9 - -5 =$ $\quad -3 - -2 =$ $\quad -15 - 10 =$

$11 - 12 =$ $\quad -12 - 10 =$ $\quad 8 - 11 =$

$-3 - 2 =$ $\quad 14 - -10 =$ $\quad -8 - 3 =$

## Adding and Subtracting Fractions

$\frac{3}{4}+\frac{1}{16}$ $\frac{2}{5}+\frac{1}{10}$ $\frac{1}{4}+\frac{1}{2}$

$\frac{3}{14}+\frac{1}{3}$ $\frac{1}{19}+\frac{1}{2}$ $\frac{1}{2}+\frac{3}{16}$

$\frac{17}{18}-\frac{4}{9}$ $\frac{2}{3}-\frac{1}{17}$ $\frac{2}{3}-\frac{3}{8}$

$\frac{10}{11}-\frac{1}{2}$ $\frac{5}{8}-\frac{4}{9}$ $\frac{2}{5}-\frac{1}{3}$

## Multiplying Fractions

$\frac{15}{7}\times\frac{5}{9}$ $5\times\frac{7}{2}$ $\frac{3}{2}\times\frac{11}{3}$

$\frac{6}{7}\times\frac{9}{2}$ $1\times\frac{12}{5}$ $3\times\frac{7}{4}$

5. $-7 = \frac{z}{7}$

6. $r + 3 = 6$

7. $-10 = -2 + f$

8. $4y = -24$

9. $54 = 6h$

10. $-13 = v - 7$

11. $2 + 4x = 10$

12. $2x - 6 = 8$

13. $3x - 2 = 16$

14. $-5 + 5x = 10$

**Algebra 1 Review Packet** **Algebra I**

**Solving Systems of Equations and Inequalities**

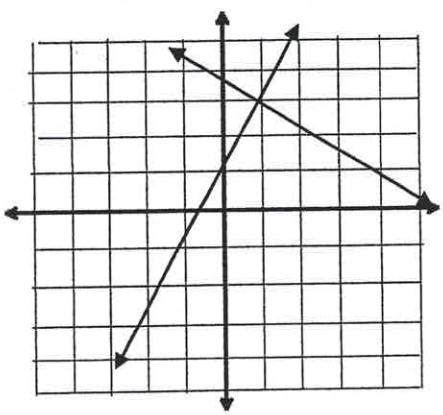
Is the ordered pair a solution of the system of linear equations?

1 . $-2x + 3y = 5$ (2, 3)
$3x + 2y = 12$

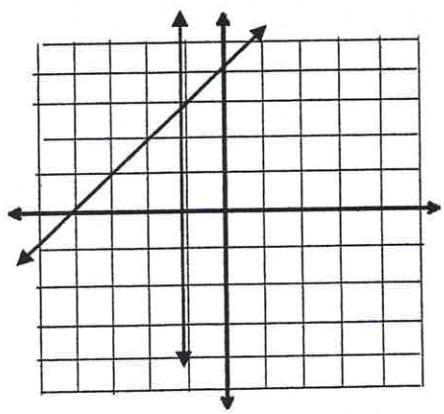
2. $2x + 5y = 23$ (-1, 5)
$-2x + 3y = 1$

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

3. $y = 2x + 1$
$2x + 3y = 11$



4. $-x + y = 4$
$x = -1$



Use **substitution** to solve the linear system.

5. $x + y = 4$
$-5x + 2y = -6$

6. $3x = 9$
$-x + 2y = 9$

Use **elimination** to solve the linear system.

7. $x + y = 3$
$x + 2y = 6$

8. $4x - 3y = 8$
$5x - 2y = -11$

**Laws of Exponents**

Simplify the expression.

17. $(x^5)^6$

18. $3x^6 \cdot 4x^2$

19. $(-2x)^4$

20. $3x \cdot (4x^3)^2$

21. $(2x^5y^6)^4 \cdot (3x^6y)^3$

22. $6(x^5)^2$

Rewrite the expression with positive exponents.

23. $x^{-4}y^3$

24. $\frac{1}{2x^{-2}y^{-3}}$

Simplify the expression completely.

25. $\left(\frac{4x^2y}{3xy^2}\right)^4$

26. $\left(\frac{2x^3y^2}{3x^{-1}y}\right)^{-3}$

27. $\frac{25x^5y^3z^{-2}}{5x^3y^7z^2}$

43. $(2x + 3)(2x - 3)$

44. $(5x + 2)^2$

Simplify.

45. $5x(3x^2 - 4x + 1) + 8x(4x^2 + 7x - 6)$

46. $9x^2(2x^3 - 8x) - 7x^2(6x^3 - 5x)$

Simplify.

47. $\frac{12x^3y^5 + 9x^2y^6 - 3xy^7}{3xy^4}$

48. $\frac{25x^2y - 5x}{-5x}$

49. The polynomial $9x^2 - 8x + 2$ is a _____ when classified by degree and term.

A. quartic trinomial
B. cubic binomial
C. quadratic polynomial
D. quadratic trinomial

## Solving Quadratic Equations

Simplify.

60. $\sqrt{169}$ 61. $-\sqrt{625}$ 62. $\sqrt{-81}$ 63. $\pm\sqrt{49}$

Solve.

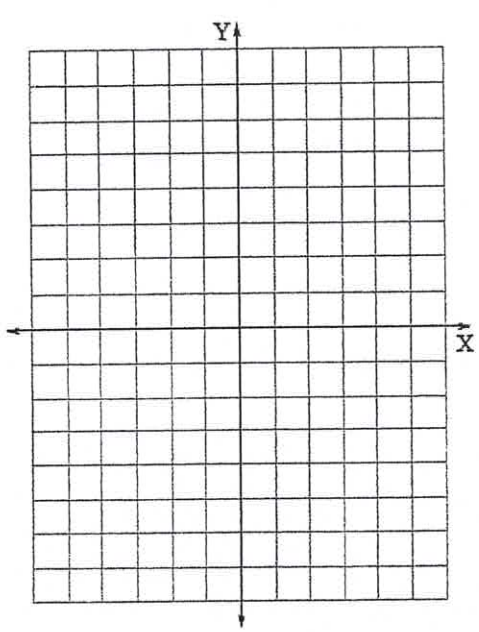
64. $x^2 + 4 = 20$ 65. $x^2 - 8 = 29$

Find the vertex of the parabola, make a table of values and graph.

66. $y = x^2 + 2x + 1$

Vertex:

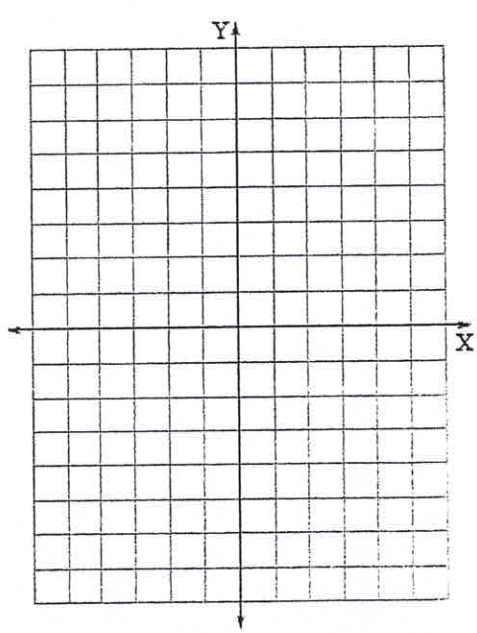
| x | y |
|---|---|




67. $y = -2x^2 + 4x - 1$

Vertex:

| x | y |
|---|---|



Evaluate the expressions.

80. $32 - 5(2 + 1) + 4$

81. $36 \div 4 \cdot 3$

82. $w + n(x - y)$ if $w = 4$ $n = 8$ $x = 5$ $y = 2$

83. $3xy - y^2$ if $x = 6$ and $y = -5$

84. $\dfrac{6 + 2^2}{17 - 6 \cdot 2}$

85. $[10 + (5^2 \cdot 2)] \div 6$

Use the distribute property to simplify.

86. $2(x^2 + 4x - 5)$

87. $-3x(2x + 4)$

88. $4(2x + 9) + 5(x - 6)$

89. $7y(2x + 6) - 2y(3x + 4)$

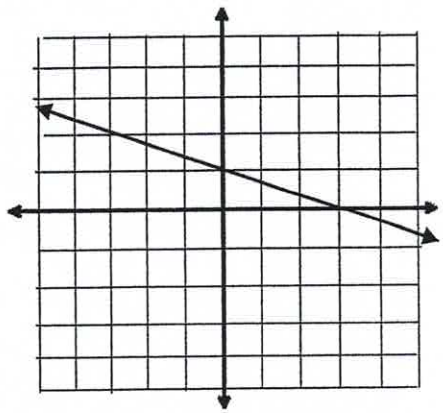
90. $-(3x + 2y - 5z)$

91. $6(5 - 2y) - 2(7 + 4y)$

105. Name the quadrant in which each point is located.

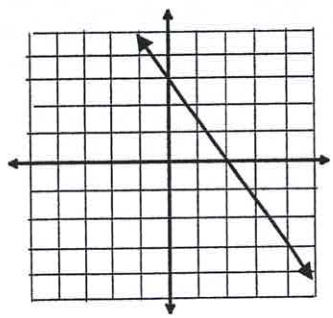
A. (-3, -8) B. (-6, 2) C. (1, 2) D. (3, -5)

106. Which equation matches the line graphed at right?

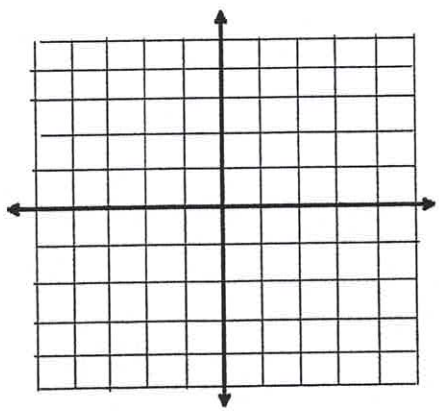


A. $y = -3x + 1$
B. $y = 3x + 1$
C. $y = \frac{1}{3}x + 1$
D. $y = -\frac{1}{3}x + 1$

107. What are the x and y intercepts of the graph?



108. Graph the line $y = 2x - 1$ using slope intercept form.



109. Graph the line $3x - 4y = -12$ using x and y intercepts.