

## Summer Review from Algebra I

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**Simplify each expression.**

1)  $7x - 10(x - 1)$

2)  $-5 - (8 - 9x)$

3)  $4(-9m - 8) - 1$

**Solve each equation.**

4)  $|r + 5| = 15$

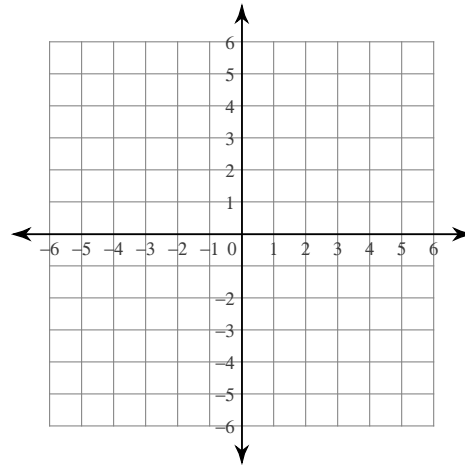
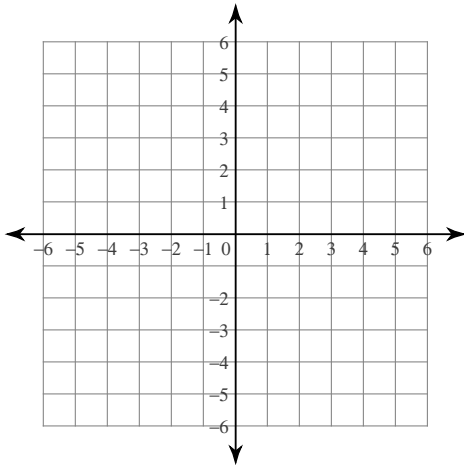
5)  $\left|\frac{a}{7}\right| = 5$

6)  $\left|\frac{x}{6}\right| = 4$

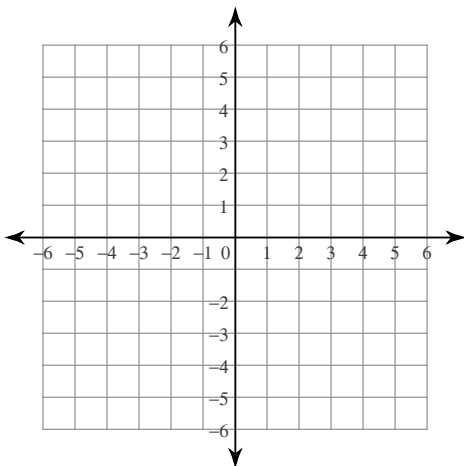
**Graph each equation.**

7)  $y = |x| + 3$

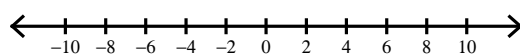
8)  $y = |x + 4| - 2$



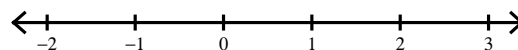
9)  $y = |x - 4| + 3$

**Solve each inequality and graph its solution.**

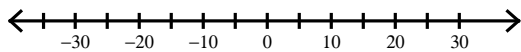
10)  $\left|\frac{n}{3}\right| \geq 2$



11)  $|6a| \leq 6$



$$12) \left| \frac{n}{10} \right| \geq 3$$



**Solve each equation.**

$$13) 178 = -r - 4(-1 + 7r)$$

$$14) 6(3p + 7) - p = 93$$

$$15) -7(x - 7) = 84$$

$$16) 3 + 8(-1 - 4n) = 24 - 3n$$

$$17) 2k - 24 = 4(4k + 8)$$

$$18) 2(n + 4) = 3 + n$$

**Simplify. Your answer should contain only positive exponents.**

$$19) 3y^{-4} \cdot -3y^3$$

$$20) xy^2 \cdot x^3$$

$$21) v^{-3} \cdot -3uv$$

$$22) (2y^{-1})^{-2}$$

$$23) (4nm^4)^4$$

$$24) (3nm^{-1})^2$$

$$25) \frac{4b^4}{2b^{-1}}$$

$$26) \frac{3k}{2k^{-1}}$$

$$27) \frac{2b^{-2}}{4b^{-2}}$$

**Factor each completely.**

$$28) 9x^2 - 1$$

$$29) 25n^2 - 1$$

$$30) a^2 - 9$$

$$31) a^3 - 4a^2 - 60a$$

$$32) r^2 - 7r - 18$$

$$33) v^3 - 64v$$

$$34) p^2 + 12p + 27$$

$$35) 4r^3 + 8r^2 - 60r$$

$$36) n^2 - 6n - 16$$

$$37) 5x^3 + 15x^2 - 50x$$

$$38) p^3 + 8p^2 + 16p$$

$$39) b^2 + 6b + 9$$

$$40) 6m^2 - 48m + 42$$

**Evaluate each function.**

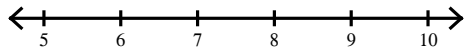
$$41) f(n) = 2n + 3; \text{ Find } f(-7)$$

$$42) k(n) = n - 5; \text{ Find } k(-7)$$

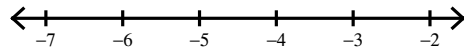
$$43) w(x) = x + 3; \text{ Find } w(-2)$$

Solve each inequality and graph its solution.

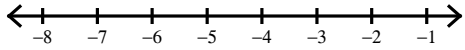
44)  $-2(7a + 1) < -100$



45)  $4 - 7(2 + 6a) < 158$

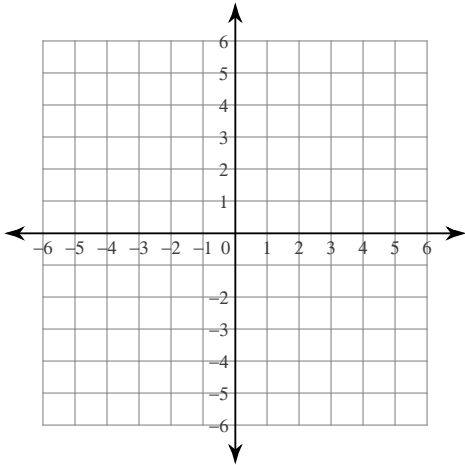


46)  $7(-5k - 5) < 140$

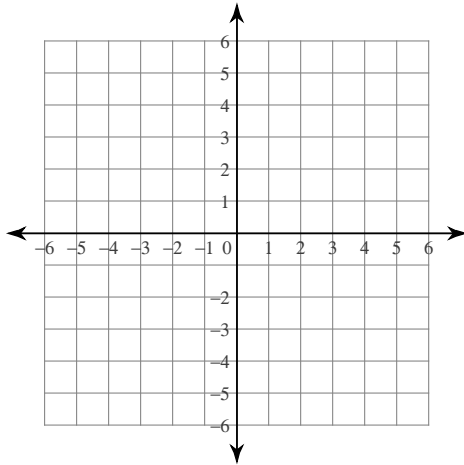


Sketch the graph of each line.

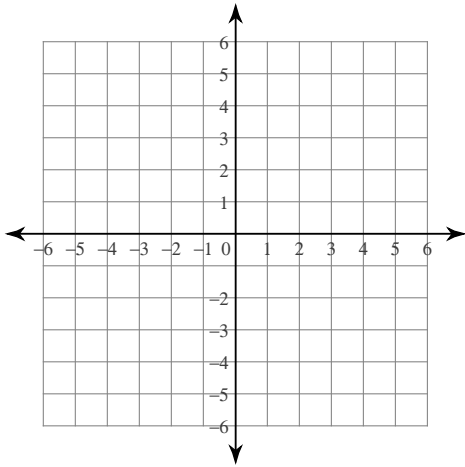
47)  $7x - y = -5$



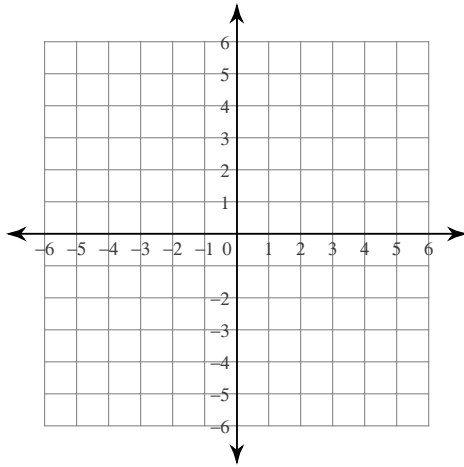
48)  $7x - 2y = -6$



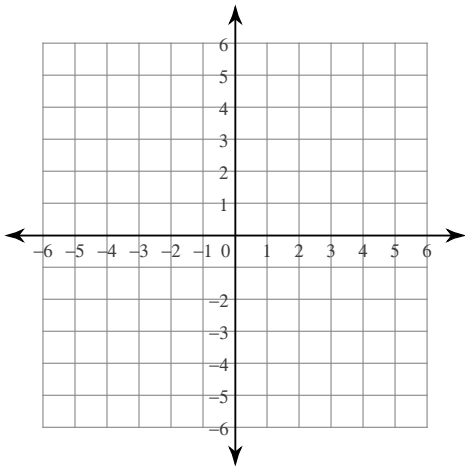
49)  $4x + y = 5$



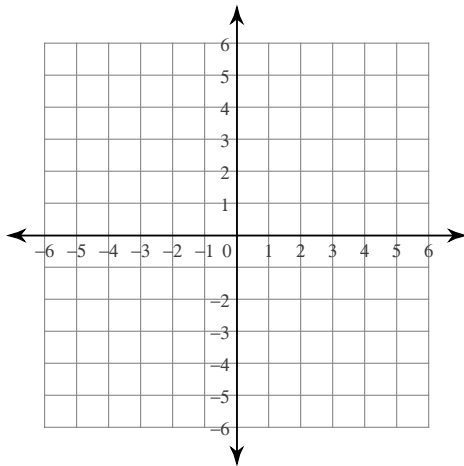
50)  $y = -x + 1$



51)  $y = -3x + 4$



52)  $y = -6x + 2$



**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

53) through:  $(3, 2)$ , slope = undefined

54) through:  $(-5, -1)$ , slope =  $-\frac{4}{5}$

55) through:  $(1, -4)$ , slope =  $-3$

**Write the slope-intercept form of the equation of the line through the given points.**

56) through:  $(2, -3)$  and  $(0, 2)$

57) through:  $(-1, -2)$  and  $(-3, -3)$

58) through:  $(-2, 2)$  and  $(0, -5)$

**Evaluate each expression.**

59)  $8 \div (5 + 6 - (4 + 5))$

60)  $10 \div (6 - 4 - 1 + 1)$

61)  $2 - (2 \times 2) \div (1 + 3)$

**Evaluate each using the values given.**

62)  $m - (6(p - p)) \div 6$ ; use  $m = 5$ , and  $p = 3$

63)  $xy - (z - (z - x))$ ; use  $x = 3$ ,  $y = 4$ , and  $z = 5$

64)  $5 \div 5 + m - (1 - p)$ ; use  $m = 5$ , and  $p = 1$

**Simplify.**

65)  $\sqrt{32x^4}$

66)  $\sqrt{98x^4}$

67)  $\sqrt{100x^2}$

**Solve each system by substitution.**

68)  $y = 4x - 8$   
 $-3x - 5y = 17$

69)  $y = -2x + 8$   
 $6x + 3y = 24$

70)  $2x + 6y = -6$   
 $y = 7x - 1$

**Solve each system by elimination.**

71)  $-4x - 3y = -29$   
 $x + 3y = 14$

72)  $3x - 2y = -6$   
 $-x + 2y = 6$

73)  $4x - 3y = 27$   
 $3x - 3y = 24$

74)  $-2x - 2y = 18$   
 $-2x + y = 21$

75)  $6x - 3y = 15$   
 $6x + y = 19$