

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) $|r + 5| = 15$

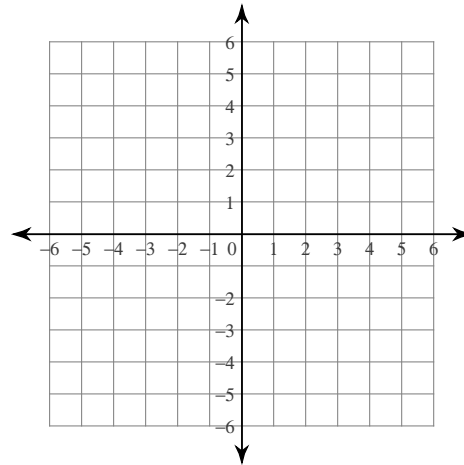
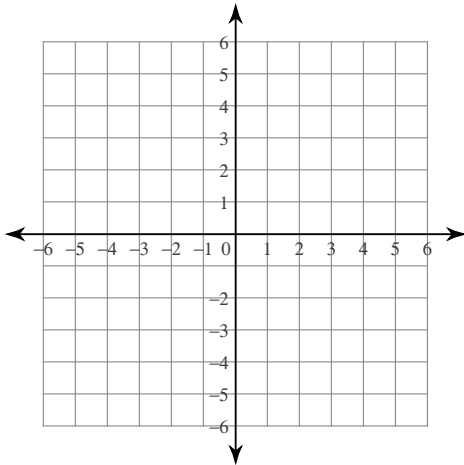
5) $\left|\frac{a}{7}\right| = 5$

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

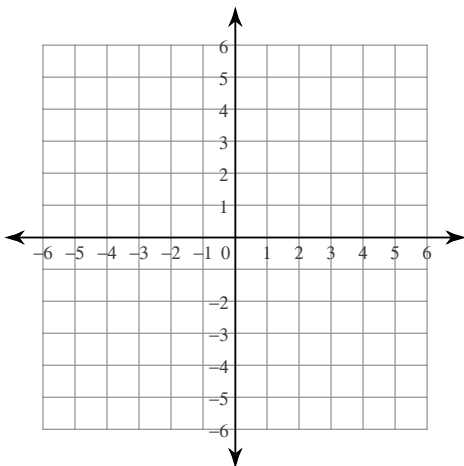
Graph each equation.

7) $y = |x| + 3$

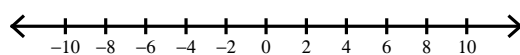
8) $y = |x + 4| - 2$



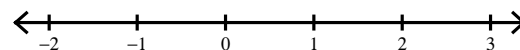
9) $y = |x - 4| + 3$

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

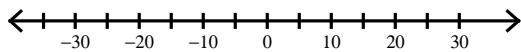
10) $\left|\frac{n}{3}\right| \geq 2$



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.

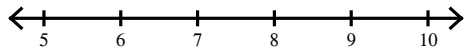
$$41) f(n) = 2n + 3; \text{ Find } f(-7)$$

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

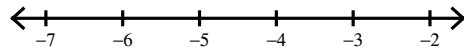
$$43) w(x) = x + 3; \text{ Find } w(-2)$$

Solve each inequality and graph its solution.

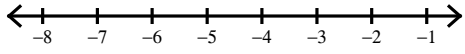
44) $-2(7a + 1) < -100$



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

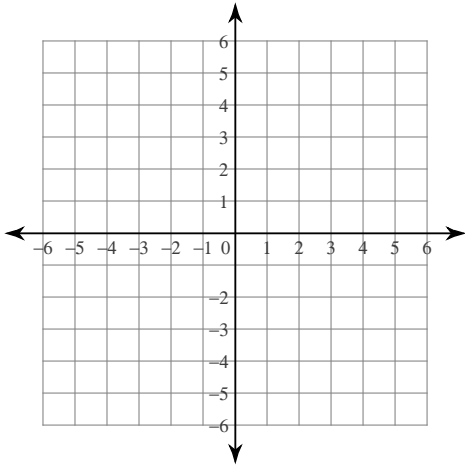


46) $7(-5k - 5) < 140$

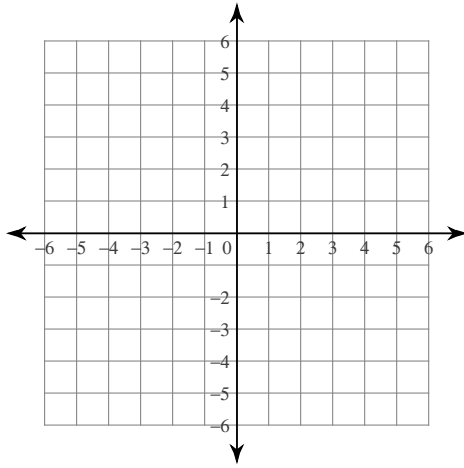


Sketch the graph of each line.

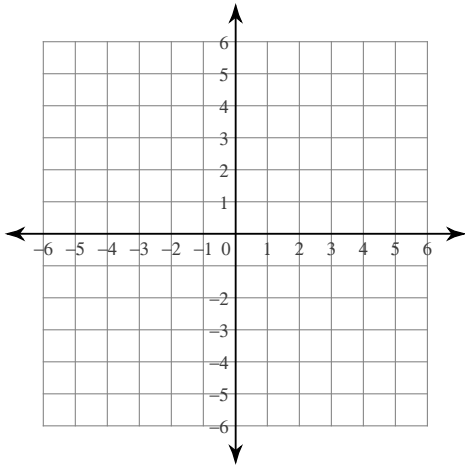
47) $7x - y = -5$



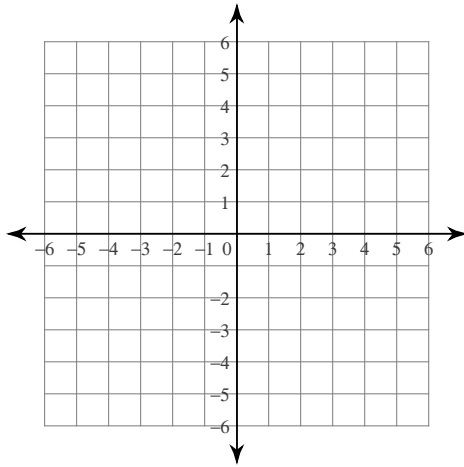
48) $7x - 2y = -6$



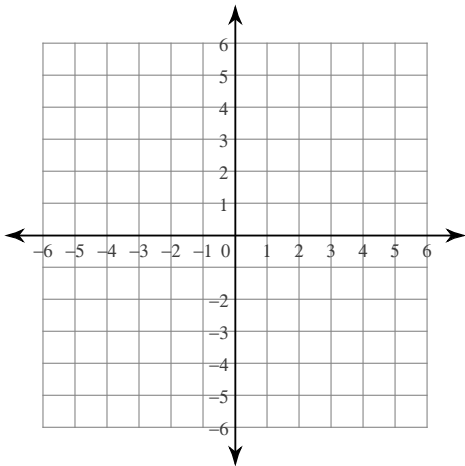
49) $4x + y = 5$



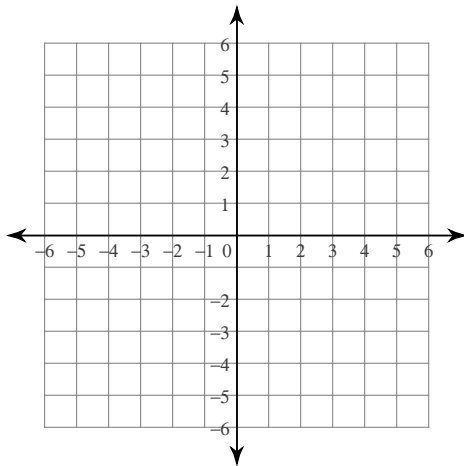
50) $y = -x + 1$



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