

## Summer Math Review - NO CALCULATOR - SHOW ALL WORK

Evaluate each expression.

1)  $6 + (6 - 3)^3$

2)  $(6)(2) - 3^2$

3)  $\left(\frac{6}{6}\right)^2 + 2$

4)  $(6 + 1 - 2)(5)$

5)  $\frac{9 - 3}{3 - ((3)(2) - 5)}$

6)  $\left(\frac{18}{6}\right)^3 - 1 + 6 - 5$

7)  $4 - 2 + 6 + 6 - (1 + 1)$

8)  $\frac{(3)(2)}{4 + 1 - 2}$

Solve each equation.

9)  $6 = -n - 8$

10)  $\frac{n - 1}{7} = 2$

11)  $\frac{n + 7}{2} = 11$

12)  $m + 6 + 4 = 13$

13)  $-11 = 1 + 3x + x$

14)  $-12 = -2v - 4v$

15)  $60 = -3(-5 + 3r)$

16)  $3(4k - 3) + 1 = -68$

17)  $60 = -5 + 5(3 - 2n)$

18)  $-55 = -5(1 + 5x)$

$$19) -60 = -5(-2b + 4)$$

$$20) 4p + 3p = 3(p - 3) + 3(p + 5)$$

$$21) -(3p - 5) = -5 - 5(p - 4)$$

$$22) -(p + 4) + 5 = 3(p - 1)$$

$$23) 4(3m - 4) - 4m = -4 + 5(m + 3)$$

$$24) -3(1 - 2r) = -3(4r + 1)$$

Solve each equation for the indicated variable.

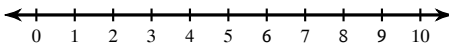
$$25) c + a = r - d, \text{ for } a$$

$$26) am = n + p, \text{ for } a$$

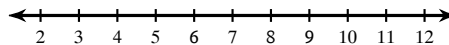
$$27) \frac{c}{x} = dr, \text{ for } x$$

Solve each inequality and graph its solution.

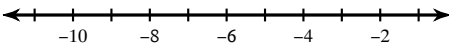
$$28) -3 + 3v \leq 2(v + 1)$$



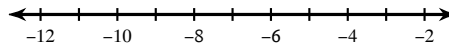
$$29) -(b - 4) < 24 - 6b$$



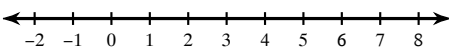
$$30) -8 - 6r < -(4 + 5r)$$



$$31) -6v + 2 \geq -4(v - 3)$$

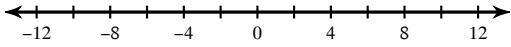


$$32) -2v - 20 > -4(6v - 4) + 4v$$

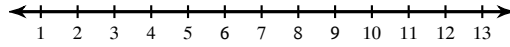


Solve each compound inequality and graph its solution.

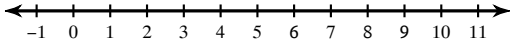
33)  $-7 + x \leq 3$  and  $x - 6 \geq -16$



34)  $\frac{x}{5} \leq 2$  and  $\frac{x}{3} \geq 1$

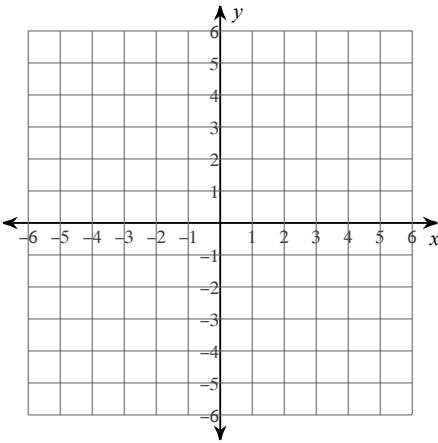


35)  $n + 5 \geq 5$  and  $\frac{n}{6} < 1$

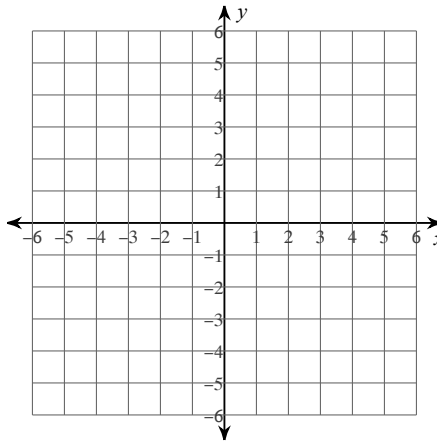


Sketch the graph of each line.

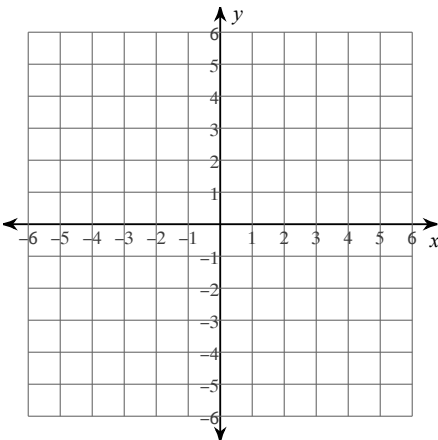
36)  $7x + 2y = 4$



37)  $5x - 2y = -6$



38)  $x + y = -2$



- 39) A boat traveled 90 miles downstream and back. The trip downstream took 5 hours. The trip back took 15 hours. What is the speed of the boat in still water? What is the speed of the current?
- 40) A boat traveled 288 miles downstream and back. The trip downstream took 12 hours. The trip back took 72 hours. Find the speed of the boat in still water and the speed of the current.
- 41) The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 9 vans and 14 buses with 818 students. High School B rented and filled 1 van and 7 buses with 374 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

Simplify. Your answer should contain only positive exponents.

42)  $2xy^{-3} \cdot 2xy^{-3}$

43)  $3xy^3 \cdot 2x^3y^{-2}$

44)  $2xy \cdot 2y^{-1}$

45)  $(u^3 \cdot 3u^{-1}v^2)^0$

46)  $(2x^2y^{-3} \cdot 2xy^{-1})^3$

47)  $(2x^0y^3 \cdot 3yx^3)^2$

48)  $\frac{(2x^3y^{-3})^3 \cdot 2x^{-1}y^3}{3y^3}$

49)  $\frac{3x^{-1}y^3}{(2x^2y^0 \cdot 2x^0y^3)^2}$

50)  $\frac{x^2y^3}{2y^0 \cdot (2x)^2}$

Simplify.

51)  $\sqrt{8}$

52)  $\sqrt{392}$

53)  $\sqrt{12}$

54)  $\sqrt{96}$

55)  $\sqrt{75}$

56)  $\sqrt{45ab^3}$

57)  $\sqrt{80xy^2}$

58)  $\sqrt{27u^2v^3}$

59)  $\sqrt{45x^2y^3}$

60)  $\sqrt{8m^3n}$

Simplify each expression.

61)  $(8x^4 + 4x^3 - 3x^2) - (8x^4 - 6x^2 - 4x^3)$

62)  $(3n^2 + 5n + 3n^4) + (6n + 5n^2 - 2n^4)$

Divide.

63)  $(b^2 + 12b + 38) \div (b + 6)$

64)  $(m^2 + 8m + 14) \div (m + 2)$

Find each product.

65)  $(5k + 5)(3k + 4)$

66)  $(5k - 2)(2k - 3)$

67)  $(7x + 4)(x + 3)$

Simplify. Write each answer in scientific notation.

68)  $(9.92 \times 10^3)(4.49 \times 10^3)$

69)  $\frac{4 \times 10^{-3}}{4 \times 10^3}$

70)  $\frac{5.4 \times 10^6}{3.51 \times 10^{-2}}$