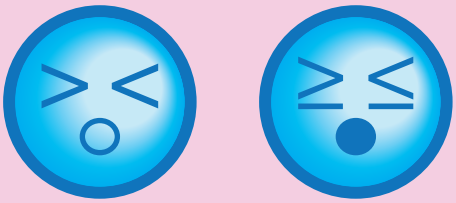
7th Grade

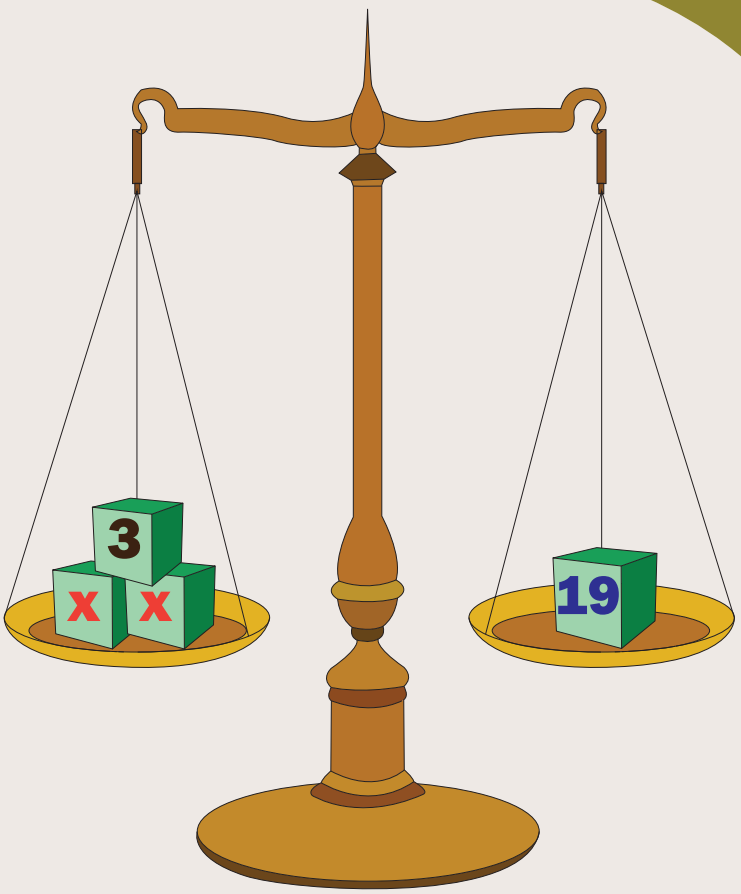
Equations & Inequalities



Solving Inequalities

$2x + 5 > 13$

$x > 4$



Workbook 1

MathWorksheets4Kids.com

Translating Phrases: Multi-Step Equations

E

Translate each verbal phrase into an algebraic expression.

1) Twice the difference between 6 times h and 3 gives 30 _____

2) Sum of 5 times z and 4 divided by two is 7 _____

3) Twenty-two minus the product of 7 and y yields 1 _____

4) Quotient of 8 lowered by 2 times t and 3 is two _____

5) Three-fourths of x added to twice of x gives 11 _____

6) 5 times together of 6 and 4 multiplied by g is equivalent to 50 _____

7) Altogether of 9 and two-thirds of k alike 13 _____

8) 7 raised by thrice of c dropped by factor of five is 2 _____

9) 8 divides total of 3 times f and six equals 3 _____

10) Volume of 8 and the product of 5 and q increased by 6 yields 88 _____

Translating Phrases: Multi-Step Equations

M

Translate each verbal phrase into an algebraic expression.

1) Twice y increased by one-third coincides with 4 times y _____

2) Thrice the square of m diminished by 5 gives 22 _____

3) Sum of three-quarters and doubled the cube of k is equal to 1 _____

4) Difference between 4 times x and one-fifth multiplied by 3 yields 6 _____

5) The ratio of the power two of n to 5 minus 4 is same as 1 _____

6) 6 times z gives total of thrice z and 5 _____

7) Product of 3 and the cube of h increased by one-ninth is 1 _____

8) 4 divides the difference between 28 and the square of k equals 6 _____

9) 5 is added to one-seventh of the square of d corresponds to 54 _____

10) Sum of 14 and 8 times t divided by 6 gives five _____

Multi-Step Equations: Integers

Solve each equation.

1) $3(x - 4) = 2(-2x + 1)$

2) $8q + 6 = 4q - 14$

3) $9 = \frac{v + 4}{v + 12}$

4) $7 - (5t - 13) = -25$

5) $-3(7p + 5) = 27$

6) $14 + 13y = 20y - 21$

7) $\frac{-8 - 3k}{2} = 11$

8) $-15b + 21 + 5b = -19$

Multi-Step Equations: Integers

Solve each equation.

1) $6 + \frac{3z + 1}{8} = 2z + 11$

2) $\frac{3(7n + 13)}{12n + 15} = 2$

3) $11(b + 18) - 6(2b + 1) = 4(-b + 9)$

4) $-5(3w + 2) + 4w = \frac{6w}{2}$

5) $\frac{m - 15}{2} = \frac{3 + m}{10} - 3$

6) $\frac{2k + 5}{5} + 9 = -(k - 3)$

7) $3(2r - 14) - 3r = 13(r - 4)$

8) $2 + 3c = -2(-2c + 6)$

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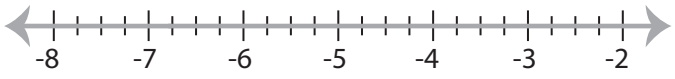
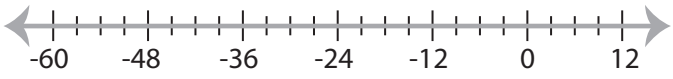
Solving & Graphing Inequalities

Solve each inequality and graph the solution.

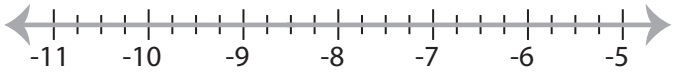
1) $\frac{7}{4} \leq \frac{x}{3} + 4$



2) $\frac{1}{8}x - 10 > -16$

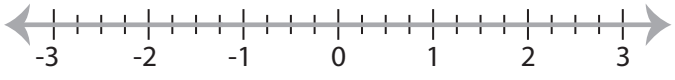


3) $\frac{x-8}{3} < -\frac{11}{2}$

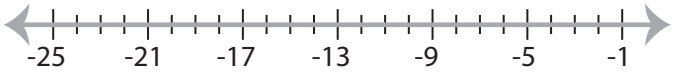


4) $\frac{x}{2} + \frac{4}{5} \geq 9$

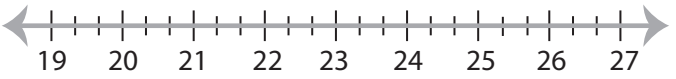
5) $\frac{1}{5}x + 1 \geq \frac{3}{4}$



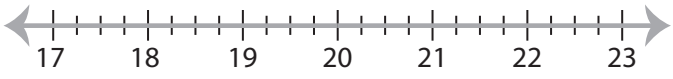
6) $-7 > \frac{1}{5}x - 3$



7) $\frac{x}{4} - \frac{2}{3} < 5$



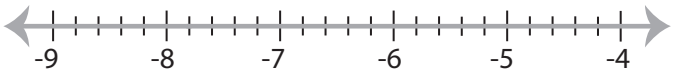
8) $\frac{12}{5} \leq \frac{x+4}{10}$



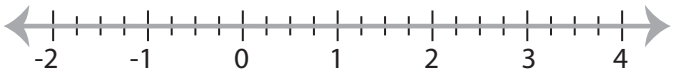
Solving & Graphing Inequalities

Solve each inequality and graph the solution.

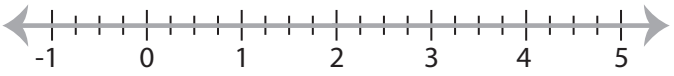
1) $-3 < \frac{x - 9}{5.6}$



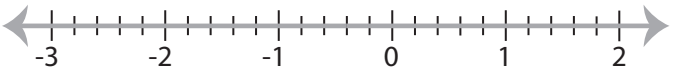
2) $4.7x - 6.5 \leq -8.3x$



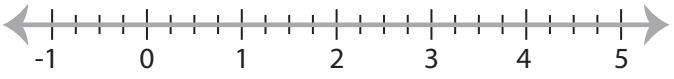
3) $-12.7x + 6.28 > -9.56x$



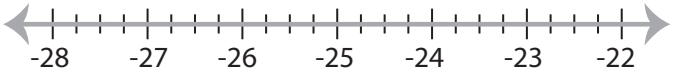
4) $-25.6 \geq 16x - 19.2$



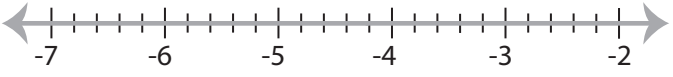
5) $-7.5 < 5 - \frac{x}{0.3}$



6) $\frac{x + 4.1}{3.4} > -6$



7) $9 + \frac{x}{0.4} \leq -1.5$



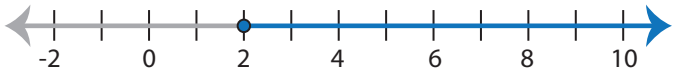
8) $-2.7x - 11.68 \geq -10x$

Identifying Inequalities

E

Choose the correct inequality that best describes each graph.

1)



a) $3x + 6 \geq 12$

b) $3x + 12 \leq 6$

c) $3x + 12 \geq 6$

d) $3x + 6 \leq 12$

2)

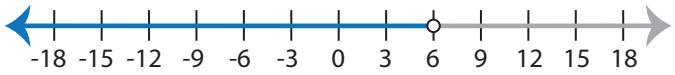
a) $\frac{x-2}{4} > 3$

b) $\frac{x-2}{3} \geq 4$

c) $\frac{x-2}{4} \leq 3$

d) $\frac{x-2}{3} < 4$

3)



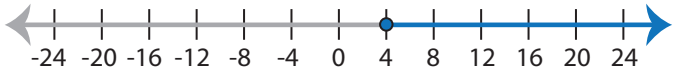
a) $\frac{x}{2} + 6 > 3$

b) $\frac{x}{2} + 3 < 6$

c) $\frac{x}{2} + 3 > 6$

d) $\frac{x}{2} + 6 < 3$

4)



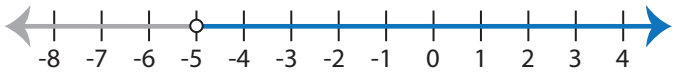
a) $6x - 19 > 5$

b) $6x - 5 \leq 19$

c) $6x - 19 < 5$

d) $6x - 5 \geq 19$

5)



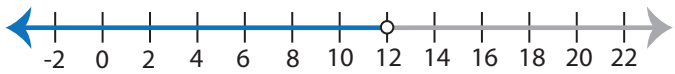
a) $7 + 3x < 22$

b) $7 + 3x > 22$

c) $22 + 3x > 7$

d) $22 + 3x < 7$

6)



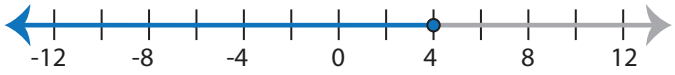
a) $2x - 3 < 21$

b) $2x - 3 \leq 21$

c) $2x - 21 \geq 3$

d) $2x - 3 > 21$

7)



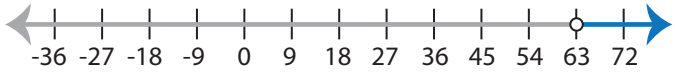
a) $19 + 4x < 3$

b) $3 + 4x \leq 19$

c) $19 + 4x > 3$

d) $3 + 4x \geq 19$

8)



a) $\frac{x}{7} + 18 < 9$

b) $\frac{x}{7} + 9 < 18$

c) $\frac{x}{7} + 18 > 9$

d) $\frac{x}{7} + 9 > 18$

Identifying Inequalities

M

Choose the correct inequality that best describes each graph.

1)

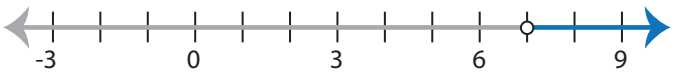
a) $-5 \geq \frac{x+5}{3}$

b) $\frac{x+5}{3} < -5$

c) $-5 \leq \frac{x+5}{3}$

d) $\frac{x+5}{3} > -5$

2)



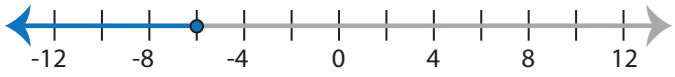
a) $-3x - 14 > -5x$

b) $-3x + 14 < -5x$

c) $-3x - 14 < -5x$

d) $-3x + 14 > -5x$

3)



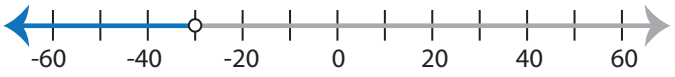
a) $-21 \leq 6x + 15$

b) $-21 \geq 6x + 15$

c) $6x + 21 > -15$

d) $6x + 21 < -15$

4)



a) $3 < 13 + \frac{x}{3}$

b) $3 \geq 13 + \frac{x}{3}$

c) $3 \leq 13 + \frac{x}{3}$

d) $3 > 13 + \frac{x}{3}$

5)

a) $5x > 7x + 18$

b) $5x + 18 < 7x$

c) $5x + 18 > 7x$

d) $5x < 7x + 18$

6)

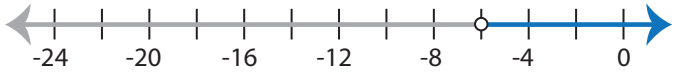
a) $-4x - 8 \geq 12$

b) $12 \geq -4x - 8$

c) $-12 \leq -4x + 8$

d) $-4x + 8 \leq -12$

7)



a) $3 > \frac{x}{2} + 6$

b) $6 < \frac{x}{2} + 3$

c) $6 > \frac{x}{2} + 3$

d) $3 < \frac{x}{2} + 6$

8)

a) $2x + 21 \geq 17$

b) $21 \leq 2x + 17$

c) $2x + 21 \leq 17$

d) $21 \geq 2x + 17$