





Equations & Inequalities

6th
Grade

$x \geq$ 	$x \leq$ 
$x >$ 	$x <$ 



Three-fourth of me is 9.
What number am I?



Workbook 1

Translating Phrases: One-Step Equations

Translate each verbal phrase into an algebraic expression.

1) Sum of x and 3 gives 5

2) 2 multiplied by b is equal to 8

3) Difference between y and 23 is 12

4) Product of 4 and z is the same as 16

5) Total of m and 3 is 21

6) b divides 6 gives 1

7) n minus 2 is equal to 16

8) 11 times p is 33

9) 20 exceeds c gives 18

10) One-half of x is equal to 3

One-Step Equations: Integers

Solve each equation.

1) $x + 9 = 12$

2) $s - 1 = 10$

3) $3 = z - 11$

4) $5 + y = 7$

5) $8 = 2 + q$

6) $6 = n - 4$

7) $r - 2 = 5$

8) $6 = m + 6$

9) $p + 7 = 8$

10) $4 + a = 13$

One-Step Equations: Fractions

Solve each equation.

1) $a + \frac{3}{4} = -\frac{1}{4}$

2) $c - \frac{2}{7} = \frac{8}{7}$

3) $\frac{7}{5} = g - \frac{6}{5}$

4) $\frac{2}{3} = \frac{1}{3} + k$

5) $\frac{5}{6} = m + \frac{1}{6}$

6) $p - \frac{3}{2} = \frac{9}{2}$

7) $-\frac{7}{9} = r - \frac{5}{9}$

8) $t + \frac{1}{4} = \frac{5}{4}$

9) $\frac{4}{3} = v + \frac{8}{3}$

10) $x - \frac{9}{8} = -\frac{3}{8}$

One-Step Equations: Decimals

Solve each equation.

1) $x + 3.8 = 4$

2) $9.6 + m = -0.4$

3) $-2 = k - 7.1$

4) $6.3 = 2.3 + b$

5) $z - 0.6 = 3.7$

6) $9 = n + 8.6$

7) $p - 5.1 = -2.4$

8) $a + 2.5 = 2.5$

9) $3.2 = 6.8 + u$

10) $0.9 = r - 9.9$

One-Step Equations

Solve each equation.

1) $8 = 6 + q$

2) $-4.6 = r - 3.3$

3) $\frac{7}{6} + x = \frac{5}{6}$

4) $10 = -2 + v$

5) $\frac{4}{3} = y - 4\frac{2}{5}$

6) $k + 6.5 = 9.1$

7) $w - 7.6 = 1.2$

8) $z - 3 = -5$

9) $-5\frac{1}{2} = n + \frac{1}{4}$

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

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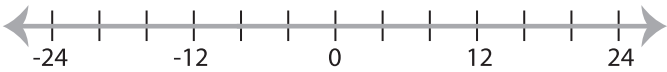
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Solving & Graphing Inequalities

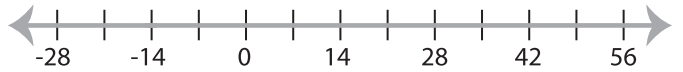
D

Solve each inequality and graph the solution.

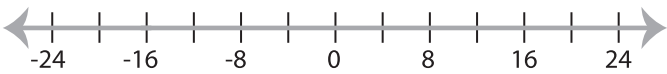
1) $-48 < 6x$



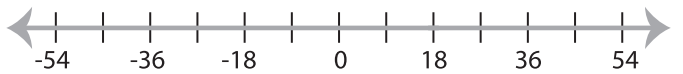
2) $-4 \geq x + 10$



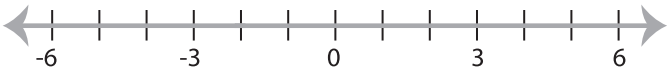
3) $\frac{x}{2} \geq -8$



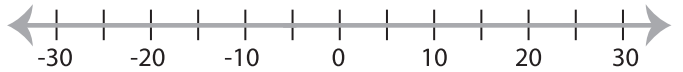
4) $15 < x - 3$



5) $-4x \leq 8$



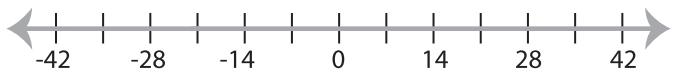
6) $-25 \geq 5x$



7) $-7 > \frac{x}{11}$



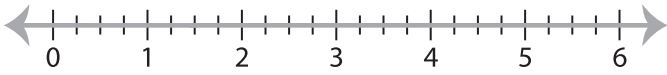
8) $x - 2 < -23$



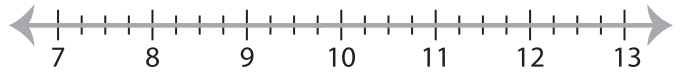
Solving & Graphing Inequalities

Solve each inequality and graph the solution.

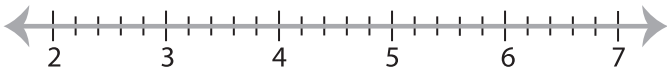
1) $x + \frac{1}{2} \geq 2$



2) $x - \frac{3}{4} < 9$



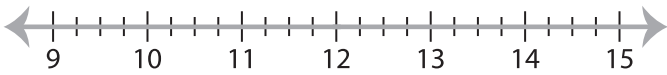
3) $\frac{11}{5} \leq \frac{1}{2}x$



4) $-4 > x + \frac{7}{3}$



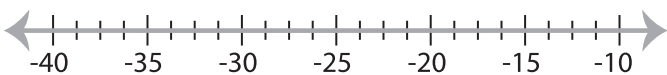
5) $\frac{3}{2} < \frac{x}{8}$



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



7) $\frac{x}{5} \leq -5$



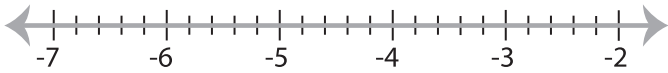
8) $-\frac{35}{4} \geq 7x$



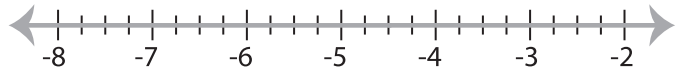
Solving & Graphing Inequalities

Solve each inequality and graph the solution.

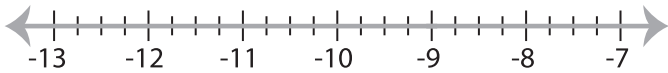
1) $x - 12.7 < -16.5$



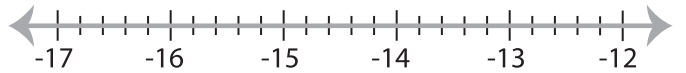
2) $-1.8 > \frac{x}{2.5}$



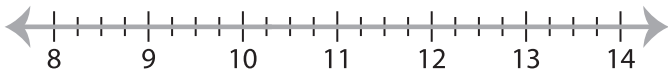
3) $3.19 + x \leq -5.81$



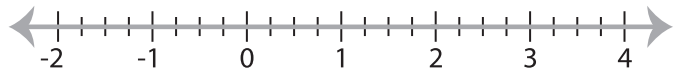
4) $1.5x \geq -21.9$



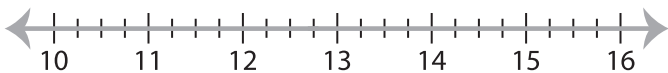
5) $6.13 \geq x - 4.12$



6) $10 \leq \frac{x}{0.2}$



7) $x + 36.21 > 48.96$



8) $-19.04 < 3.4x$

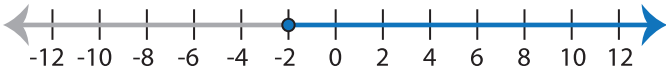


Identifying Inequalities

E

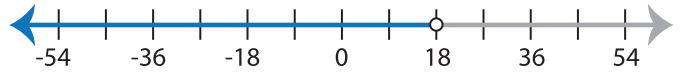
Choose the correct inequality that best describes each graph.

1)



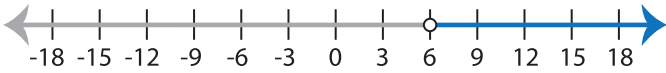
- | | |
|-------------------|-------------------|
| a) $x + 8 \geq 6$ | b) $x + 8 < 6$ |
| c) $x + 8 > 6$ | d) $x + 6 \leq 8$ |

2)



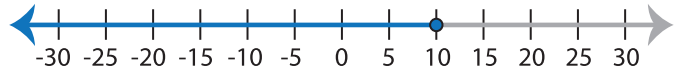
- | | |
|-------------------------|-------------------------|
| a) $\frac{x}{9} \geq 2$ | b) $\frac{x}{9} > 2$ |
| c) $\frac{x}{2} < 9$ | d) $\frac{x}{2} \leq 9$ |

3)



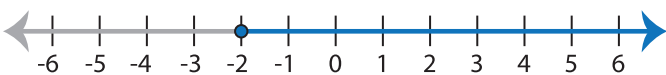
- | | |
|-----------------|--------------|
| a) $5x \geq 30$ | b) $5x > 30$ |
| c) $5x \leq 30$ | d) $5x < 30$ |

4)



- | | |
|-------------------|----------------|
| a) $x - 5 \geq 5$ | b) $x - 5 < 5$ |
| c) $x - 5 \leq 5$ | d) $x - 5 > 5$ |

5)



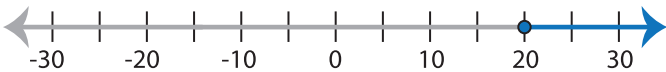
- | | |
|-------------------|-------------------|
| a) $3 + x > 1$ | b) $3 + x < 1$ |
| c) $3 + x \geq 1$ | d) $3 + x \leq 1$ |

6)



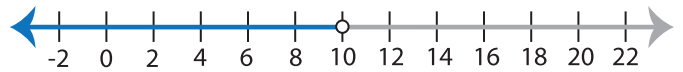
- | | |
|-----------------|-----------------|
| a) $2x > 24$ | b) $2x < 24$ |
| c) $2x \geq 24$ | d) $2x \leq 24$ |

7)



- | | |
|----------------------|-------------------------|
| a) $\frac{x}{5} < 4$ | b) $\frac{x}{5} \geq 4$ |
| c) $\frac{x}{5} > 4$ | d) $\frac{x}{5} \leq 4$ |

8)



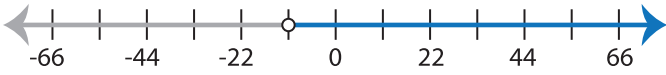
- | | |
|-------------------|----------------|
| a) $x - 2 \leq 8$ | b) $x - 2 > 8$ |
| c) $x - 2 \geq 8$ | d) $x - 2 < 8$ |

Identifying Inequalities

M

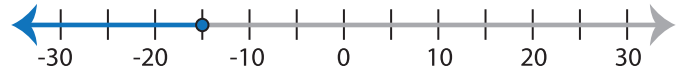
Choose the correct inequality that best describes each graph.

1)



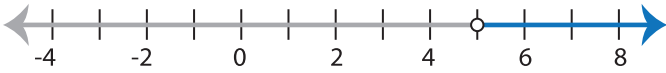
- a) $x + 2 \geq -9$ b) $x + 2 \leq -9$
 c) $-9 < x + 2$ d) $-9 > x + 2$

2)



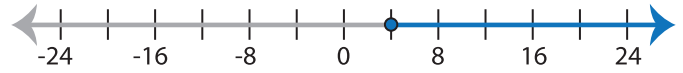
- a) $\frac{x}{3} < -5$ b) $-5 \geq \frac{x}{3}$
 c) $\frac{x}{3} > -5$ d) $-5 \leq \frac{x}{3}$

3)



- a) $7x < 35$ b) $7x \geq 35$
 c) $35 \geq 7x$ d) $35 < 7x$

4)



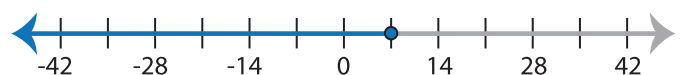
- a) $-6 \leq x - 10$ b) $x - 10 < -6$
 c) $x - 10 > -6$ d) $-6 \geq x - 10$

5)



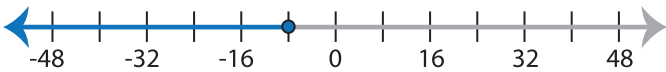
- a) $4 < 11 + x$ b) $11 + x \geq 4$
 c) $11 + x \leq 4$ d) $4 > 11 + x$

6)



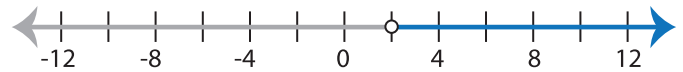
- a) $2x < 14$ b) $14 \leq 2x$
 c) $14 \geq 2x$ d) $2x > 14$

7)



- a) $\frac{x}{8} \geq -1$ b) $-1 < \frac{x}{8}$
 c) $-1 > \frac{x}{8}$ d) $\frac{x}{8} \leq -1$

8)



- a) $-7 < x - 9$ b) $x - 7 \leq -9$
 c) $x - 7 \geq -9$ d) $-7 > x - 9$