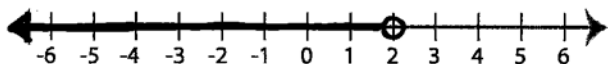


Solving & Graphing Inequalities

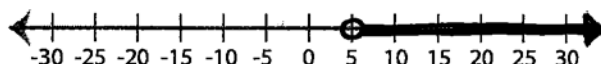
ES1

Solve each inequality and graph the solution.

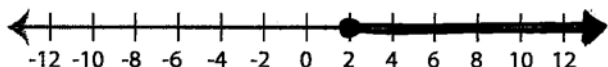
$$1) \begin{aligned} 2(6x - 5) &< 14 \\ 12x - 10 &< 14 \\ 12x &< 24 \\ \boxed{x < 2} \end{aligned}$$



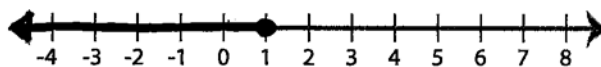
$$2) \begin{aligned} \left(\frac{3x-8}{7} > 1\right) \times 7 \\ 3x - 8 > 7 \\ 3x > 15 \\ x > 5 \end{aligned}$$



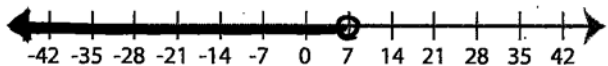
$$3) \begin{aligned} \left(\frac{7x+1}{3} \geq 5\right) \times 3 \\ 7x + 1 \geq 15 \\ 7x \geq 14 \\ x \geq 2 \end{aligned}$$



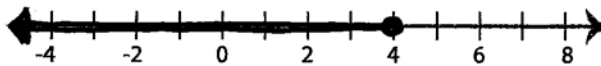
$$4) \begin{aligned} 4(5x + 2) \leq 28 \\ 20x + 8 \leq 28 \\ 20x \leq 20 \\ x \leq 1 \end{aligned}$$



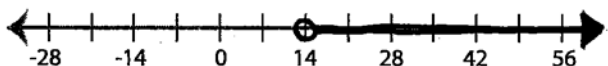
$$5) \begin{aligned} \left(\frac{9x}{7} - x < 2\right) \times 7 \\ 9x - 7x < 14 \\ 2x < 14 \\ x < 7 \end{aligned}$$



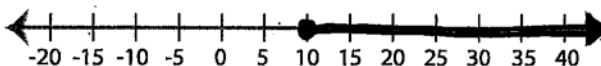
$$6) \begin{aligned} \left(\frac{4x+8}{2} \leq 12\right) \times 2 \\ 4x + 8 \leq 24 \\ 4x \leq 16 \\ x \leq 4 \end{aligned}$$



$$7) \begin{aligned} \left(\frac{5(x-2)}{10} > 6\right) \times 10 \\ 5x - 10 > 60 \\ 5x > 70 \\ x > 14 \end{aligned}$$



$$8) \begin{aligned} \left(3 + \frac{2x}{5} \geq 17 - x\right) \times 5 \\ 15 + 2x \geq 85 - 5x \\ 7x \geq 70 \\ x \geq 10 \end{aligned}$$



Solving & Graphing Inequalities

MS1

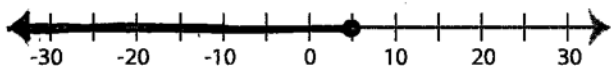
Solve each inequality and graph the solution.

$$1) \left(9 + x \leq \frac{3x}{5} + 11\right) \times 5$$

$$45 + 5x \leq 3x + 55$$

$$2x \leq 10$$

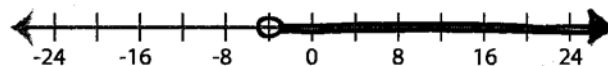
$$x \leq 5$$



$$2) 8x + 16 > 5x + 4$$

$$3x > -12$$

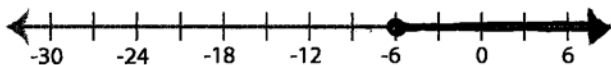
$$x > -4$$



$$3) 15x + 19 \geq 10x - 11$$

$$5x \geq -30$$

$$x \geq -6$$

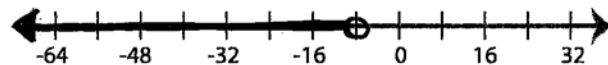


$$4) \left(x + 6 < \frac{x}{4}\right) \times 4$$

$$4x + 24 < x$$

$$3x < -24$$

$$x < -8$$

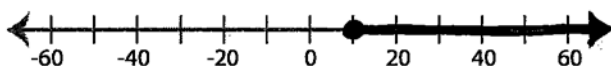


$$5) \left(7 \leq \frac{4x+2}{6}\right) \times 6$$

$$42 \leq 4x + 2$$

$$40 \leq 4x$$

$$10 \leq x \rightarrow x \geq 10$$

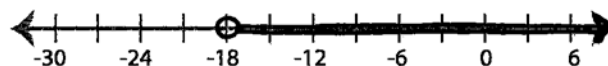


$$6) 9(2x + 8) > 14x$$

$$18x + 72 > 14x$$

$$4x > -72$$

$$x > -18$$

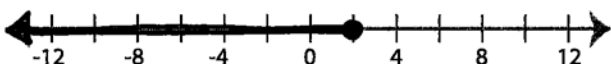


$$7) 15 \geq 3(7x - 9)$$

$$15 \geq 21x - 27$$

$$42 \geq 21x$$

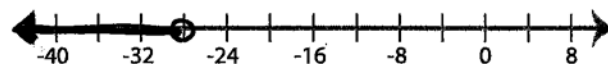
$$2 \geq x \rightarrow x \leq 2$$



$$8) \left(x + 14 < \frac{x}{2}\right) \times 2$$

$$2x + 28 < x$$

$$x < -28$$

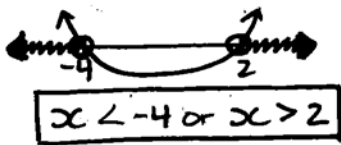


Solving Quadratic Inequalities

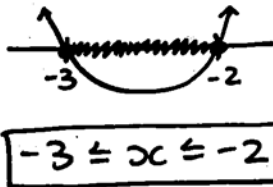
L351

Solve each quadratic inequality.

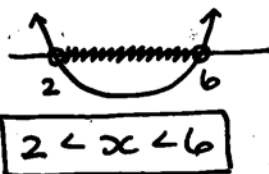
1) $2x^2 + 2x - 8 > x^2$
 $x^2 + 2x - 8 > 0$
 $(x+4)(x-2) > 0$
 \downarrow
 $x = -4, 2$



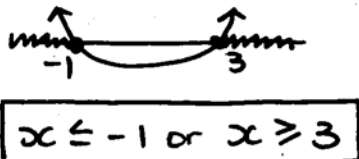
3) $3x^2 - 5x \geq 4x^2 + 6$
 $0 \geq x^2 + 5x + 6$
 $0 \geq (x+2)(x+3)$



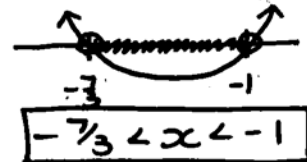
5) $-x^2 - 10x + 11 < -2x^2 - 2x - 1$
 $x^2 - 8x + 12 < 0$
 $(x-6)(x-2) < 0$



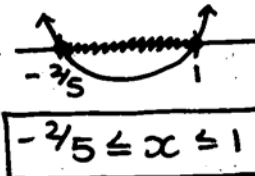
7) $3x^2 + 7x \leq 5x^2 + 3x - 6$
 $(0 \leq 2x^2 - 4x - 6) \div 2$
 $0 \leq x^2 - 2x - 3$
 $0 \leq (x-3)(x+1)$



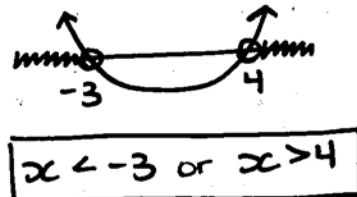
2) $5x^2 + 11x + 3 < 2x^2 + x - 4$
 $3x^2 + 10x + 7 < 0$
 $3x^2 + 7x + 3x + 7 < 0$
 $x(3x+7) + 1(3x+7) < 0$
 $(3x+7)(x+1) < 0$



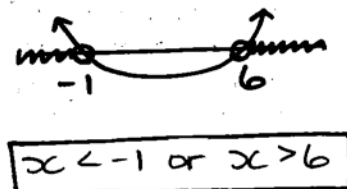
4) $6x^2 \leq x^2 + 3x + 2$
 $5x^2 - 3x - 2 \leq 0$
 $5x^2 - 5x + 2x - 2 \leq 0$
 $(5x+2)(x-1) \leq 0$



6) $4x^2 - 12 > 3x^2 + x$
 $x^2 - x - 12 > 0$
 $(x-4)(x+3) > 0$



8) $x^2 > 5x + 6$
 $x^2 - 5x - 6 > 0$
 $(x-6)(x+1) > 0$

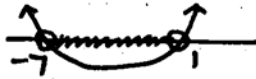
21 1
7 3

Solving Quadratic Inequalities

L3S2

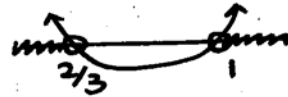
Solve each quadratic inequality.

1) $x^2 + 6x - 6 < 1$
 $x^2 + 6x - 7 < 0$
 $(x + 7)(x - 1) < 0$



$$\boxed{-7 < x < 1}$$

2) $-4x^2 - 3 > -7x^2 + 5x - 5$
 $3x^2 - 5x + 2 > 0$
 $3x^2 - 3x - 2x + 2 > 0$
 $(3x - 2)(x - 1) > 0$



$$\boxed{x < \frac{2}{3} \text{ or } x > 1}$$

3) $2x^2 \leq 7x^2 + x - 4$
 $0 \leq 5x^2 + x - 4$
 $0 \leq 5x^2 + 5x - 4x - 4$
 $0 \leq (5x - 4)(x + 1)$



$$\boxed{x \leq -1 \text{ or } x \geq \frac{4}{5}}$$

4) $3x^2 - 4x + 6 \geq 2x^2 + 3$
 $x^2 - 4x + 3 \geq 0$
 $(x - 3)(x - 1) \geq 0$



$$\boxed{x \leq 1 \text{ or } x \geq 3}$$

5) $-x^2 - 2x - 5 \geq -3x^2 + x + 4$
 $2x^2 - 3x - 9 \geq 0$
 $2x^2 - 6x + 3x - 9 \geq 0$
 $(2x + 3)(x - 3) \geq 0$



$$\boxed{x \leq -\frac{3}{2} \text{ or } x \geq 3}$$

6) $-9x^2 + 3x + 1 \leq -8x^2 + 3x$
 $0 \leq x^2 - 1$
 $0 \leq (x + 1)(x - 1)$



$$\boxed{x \leq -1 \text{ or } x \geq 1}$$

7) $4x^2 > x^2 + 3x + 6$
 $(3x^2 - 3x - 6 > 0) \div 3$
 $x^2 - x - 2 > 0$
 $(x - 2)(x + 1) > 0$



$$\boxed{x < -1 \text{ or } x > 2}$$

8) $7x^2 + 8x < 4x^2 + 3$
 $3x^2 + 8x - 3 < 0$
 $3x^2 + 9x - x - 3 < 0$
 $(3x - 1)(x + 3) < 0$



$$\boxed{-3 < x < \frac{1}{3}}$$