Solve quadratic equations by factoring

1. $3x^2 + 8x + 5 = 0$ 1. $2x^2 + 7x + 5 = 0$ 1. $3x^2 + 16x + 5 = 0$

$$x = -\frac{5}{2} \quad x = -1$$

2. $5x^2 - 8x + 3 = 0$ 2. $3x^2 - 10x + 7 = 0$ 2. $5x^2 - 16x + 3 = 0$

$$x = \frac{7}{3} \qquad x = 1$$

3. $2x^2 + 5x - 3 = 0$ 3. $3x^2 + x - 2 = 0$ 3. $2x^2 + 5x + 3 = 0$

$$x = \frac{2}{3} \qquad x = -1$$

Solve for x by factoring

4. $6x^2 - 4x - 2 = 0$ 4. $6x^2 - 2x - 4 = 0$ 4. $4x^2 - 14x + 10 = 0$

$$x = -\frac{2}{3}, \; x = 1$$

5. $x^2 + 5x + 6$ 5. $x^2 + 7x + 6$ 5. $x^2 + 5x + 4$

$$x = -1, \; x = -6$$

6. $x^2 - 9x + 8$ 6. $x^2 - 6x + 8$ 6. $x^2 - 5x + 6$

$$x = 4, \; x = 2$$

Solving Quadratic Equations Part 1 [20.3]

Solve for x by factoring

7. $4x^2 - 25 = 0$ 　　　 7. $9x^2 - 16 = 0$ 　　　 7. $16x^2 - 49 = 0$

$$x = -\frac{4}{3} \quad x = \frac{4}{3}$$

8. $121x^2 - 225 = 0$ 　　 8. $144x^2 - 169 = 0$ 　　 8. $81x^2 - 196 = 0$

$$x = -\frac{13}{12} \quad x = \frac{13}{12}$$

9. $16x^2 - 225 = 0$ 　　 9. $225x^2 - 9 = 0$ 　　 9. $25x^2 - 256 = 0$

Solve by using the Quadratic Formula

1. $3x^2 + 8x + 5 = 0$ 1. $3x^2 + 10x + 3 = 0$ 1. $3x^2 + 7x + 2 = 0$

      a =   b =   c =   a =   b =   c =   a =   b =   c =

$x = \dfrac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$ $x = \dfrac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$ $x = \dfrac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$

$x = -\dfrac{1}{3}$ $x = -3$

Solve by using the Quadratic Formula

2. $2x^2 - 5x = 0$ 2. $3x^2 - 5x = 0$ 2. $2x^2 - 3x = 0$

   a =   b =   c =   a =   b =   c =   a =   b =   c =

$x = \dfrac{-(\ \ )\pm\sqrt{(\ \ )^2-4(\ \ )(\ \ )}}{2(\ \ )}$ $x = \dfrac{-(\ \ )\pm\sqrt{(\ \ )^2-4(\ \ )(\ \ )}}{2(\ \ )}$ $x = \dfrac{-(\ \ )\pm\sqrt{(\ \ )^2-4(\ \ )(\ \ )}}{2(\ \ )}$

$x = \dfrac{5}{3}$ $x = 0$

Solve by using the Quadratic Formula

3. $16x^2 - 25 = 0$ 3. $25x^2 - 16 = 0$ 3. $9x^2 - 49 = 0$

   a =   b =   c =   a =   b =   c =   a =   b =   c =

$x = \frac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$ $x = \frac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$ $x = \frac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$

$x = \frac{4}{5}$ $x = -\frac{4}{5}$

Solve by using the Quadratic Formula

4. $x^2 - 6x - 7 = 0$ 4. $x^2 - 2x - 3 = 0$ 4. $x^2 - 4x - 12 = 0$

a =   b =   c =   a =   b =   c =   a =   b =   c =

$x = \dfrac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$ $x = \dfrac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$ $x = \dfrac{-(\ )\pm\sqrt{(\ )^2-4(\ )(\ )}}{2(\ )}$

$x = 3$ $x = -1$

Solving Quadratic Equations Part 2

Solve by using the Quadratic Formula

5. $4x^2 - 11x - 3 = 0$ 5. $2x^2 + 9x - 5 = 0$ 5. $3x^2 - 10x - 8 = 0$

   a =   b =   c =   a =   b =   c =   a =   b =   c =

   $x = \dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$ $x = \dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$ $x = \dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x = \dfrac{1}{2}$ $x = -5$

Solve by Completing the Square

1. $x^2 - 8x + 7 = 0$

1. $x^2 - 10x + 24 = 0$

1. $x^2 - 6x + 5 = 0$

$x = 6$ $x = 4$

Solve by Completing the Square

2. $x^2 + 10x + 21 = 0$ 2. $x^2 + 12x + 35 = 0$ 2. $x^2 + 14x + 40 = 0$

$x = -7$ $x = -5$

Solve by Completing the Square

3. $x^2 - 3x - 4 = 0$

3. $x^2 - 5x - 6 = 0$

3. $x^2 - 7x - 30 = 0$

$x = -1$ $x = 6$

Solve by Completing the Square

4. $x^2 - 9x + 8 = 0$

4. $x^2 - 7x + 6 = 0$

4. $x^2 - 11x + 30 = 0$

$x = 6$ $x = 1$

Solve by Completing the Square

4. $x^2 - 9x + 8 = 0$

4. $x^2 - 7x + 6 = 0$

4. $x^2 - 11x + 30 = 0$

Solve by Completing the Square

5. $x^2 + 11x - 12 = 0$

5. $x^2 + 9x - 10 = 0$

5. $x^2 + 7x - 18 = 0$

$x = -10 \quad x = 1$

Inequalities   [23.1]

Convert inequalities to and from set notation, graph, and interval notation

1. $x \leq 5$	1. $x \geq 5$	1. $x < 5$

Graph: Graph: Graph:

Interval N: Interval N: Interval N:

2. $x > -4$	2. $x \leq -17$	2. $x > -9$

Graph: Graph: Graph:

Interval N: Interval N: Interval N:

3.   3.   3.

Set Notation   Set Notation   Set Notation:

Interval N: Interval N: Interval N:

4.   4.   4.
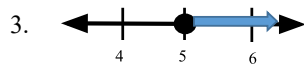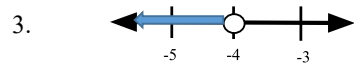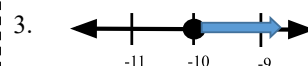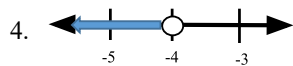
Set Notation: Set Notation   Set Notation:
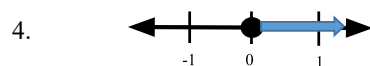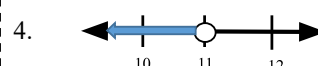
Interval N: Interval N: Interval N:

Inequalities   [23.2]

Convert inequalities to and from set notation, graph, and interval notation

5. $[2, \infty)$	5. $(-\infty, 4)$	5. $(-3, \infty)$
Graph:	Graph:	Graph:
Set Notation:	Set Notation:	Set Notation:

6. $(-\infty, -4)$	6. $(-\infty, 0]$	6. $(-\infty, 10]$
Graph:	Graph:	Graph:
Set Notation:	Set Notation:	Set Notation:

7.
-5   -4   -3

Set Notation:

Interval N:

7.
10   11   12
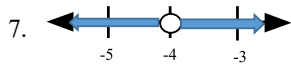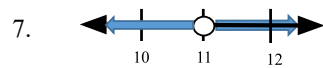
Set Notation

Interval N:

7. $(-\infty, 2)\cup(2, \infty)$

Graph:

Set Notation:

8.
4   5   6

Set Notation

Interval N:

8.
-5   -4   -3
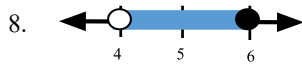
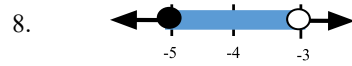Set Notation

Interval N:

8. $(-5, 2)$

Graph:

Set Notation:

Solving Inequalities   [24.1]

Solve for x:

1. $x + 6 < 13$

1. $x - 8 > -15$

1. $x + 11 \le -9$

$x > -7$

$(-7, \infty)$ -7

2. $13 \le x - 4$

2. $14 \ge x - 8$

2. $-1 < x + 15$

$x > 22$

$(-\infty, 22]$ 22

3. $-x + 3 > -11$

3. $-x - 5 \ge -14$

3. $-x + 12 < 21$

$x \le 9$

$(-\infty, 9]$ 9

Solve for x:

4. $-24 \geq -13 - x$

4. $-16 > -12 - x$

4. $19 \leq 23 - x$

$x > 4$
$(4, \infty)$ 4

5. $10 - x \geq -13$

5. $22 - x > -12$

5. $-9 \leq -20 - x$

$x < 34$
$(-\infty, 34)$ 34

6. $-14 < -x - 10$

6. $16 \leq -x + 17$

6. $-19 > -23 - x$

$x \leq 1$
$(-\infty, 1]$ 1

Solve for x:

1. $2 < x + 6 \leq 13$

1. $-15 \leq x - 8 \leq 18$

1. $-4 < x + 1 \leq 1$

$-7 \leq x \leq 26$ $[-7, 26]$ -7 26

2. $4 \leq 2x - 8 < 10$

2. $13 \leq 3x - 8 < 19$

2. $-5 < 5x + 15 < 20$

$7 \leq x < 9$ $[7, 9)$ 7 9

3. $1 < \frac{x-5}{2} < 3$

3. $-2 < \frac{x+3}{3} \leq 5$

3. $-8 < \frac{x-2}{4} \leq -1$

$-9 < x \leq 12$ $(-9, 12]$ -9 12

Solve for x:

4. $|2x + 6| < 10$

4. $|3x + 6| \leq 18$

4. $|2x - 6| < 10$

$-8 \leq x \leq 4$ $[-8, 4]$ -8 4

5. $|3x - 9| \leq 12$

5. $|2x - 19| < 11$

5. $|4x + 6| \leq 10$

$4 < x < 15$ (4, 15)   4   15

Solve for x:

6. $|x + 6| > 5$

6. $|x + 7| > 9$

6. $|x - 9| \geq 12$

$x < -16 \; or \; x > 2$ $(-\infty, -16) \cup (2, \infty)$

7. $|4x - 6| \geq 14$

7. $|2x - 7| \geq 19$

7. $|3x + 9| \geq 12$

$x \leq -6 \; or \; x \geq 13$ $(-\infty, -6] \cup [13, \infty)$

Solve for x:

8. $|3x + 27| \leq 12$

8. $|2x + 19| < 11$

8. $|4x + 6| \leq 2$

9. $|2x + 10| > 10$

9. $|3x + 18| \geq 18$

9. $|2x + 12| > 10$

8. $|3x + 27| \leq 12$

8. $|2x + 19| < 11$

8. $|4x + 6| \leq 2$