

# Algebra I: Unit 07 review: Solving quadratic equations

Remember, the quadratic formula states that:

$$\text{If } ax^2 + bx + c = 0, \text{ then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1. Solve by factoring:  $-4x^2 - 32x - 41 = 7$   
 $-7 \quad -7$

$$-4x^2 - 32x - 48 = 0$$

$$-4(x^2 + 8x + 12) = 0$$

	$x$	$6$
$x$	$x^2$	$6x$
$2$	$2x$	$12$

$$-4(x+6)(x+2) = 0$$

$$x+6=0$$

$$x = -6$$

$$x+2=0$$

$$x = -2$$

2. Solve using the quadratic formula:  $20x^2 - 3x + 5 = 7$   
 $-7 \quad -7$

$$20x^2 - 3x - 2 = 0$$

$$a = 20$$

$$b = -3$$

$$c = -2$$

$$\rightarrow \frac{-(-3) \pm \sqrt{(-3)^2 - (4)(20)(-2)}}{(2)(20)}$$

$$\frac{3 \pm \sqrt{9 + 160}}{40}$$

$$\frac{3 \pm \sqrt{169}}{40}$$

$$\frac{3 \pm 13}{40}$$

$$\begin{aligned} & \xrightarrow{+} \boxed{\frac{16}{40} = x} \\ & \xrightarrow{-} \boxed{\frac{-10}{40} = x} \end{aligned}$$

Remember, the quadratic formula states that:

$$\text{If } ax^2 + bx + c = 0, \text{ then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Solve using the method of your choice

$$3. -6x^2 - 13x + 5 = 10$$

-10 -10

$$-6x^2 - 13x - 5 = 0$$

$$a = -6$$

$$b = -13$$

$$c = -5$$

$$\frac{-(-13) \pm \sqrt{(-13)^2 - (4)(-6)(-5)}}{2(-6)}$$

$$\frac{13 \pm \sqrt{169 - 120}}{-12}$$

$$\frac{13 \pm \sqrt{49}}{-12}$$

$$\frac{13 \pm 7}{-12}$$

⊕

$$x = \frac{-20}{12}$$

⊖

$$x = \frac{-6}{12}$$

$$4. 2x^2 - 6x - 10 = -2$$

+2 +2

$$2x^2 - 6x - 8 = 0$$

$$2(x^2 - 3x - 4) = 0$$

	$x$	$-4$
$x$	$x^2$	$-4x$
$1$	$1x$	$-4$

$$2(x-4)(x+1) = 0$$

$$x - 4 = 0$$

$$x = 4$$

$$x + 1 = 0$$

$$x = -1$$