Algebra I: Unit 06 review :: Solve quadratic equations

Solve each equation below for x, and check your solution by substitution. Show all of your work.

1. $(3x + 18)(7x - 28) = 0$

$3x + 18 = 0$ OR $7x - 28 = 0$

$-18 \quad -18$ $+28 \quad +28$

$\frac{3x}{3} = \frac{-18}{3}$ $\frac{7x}{7} = \frac{28}{7}$

$x = -6$ $x = 4$

SUBSTITUTE FOR BOTH x's

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Check your solutions by substituting into the *original* equation:

Check solution #1:

$(3x + 18)(7x - 28) = 0$

$(3(-6) + 18)(7(-6) - 28) \stackrel{?}{=} 0$

$(-18 + 18)(-42 - 28) \stackrel{?}{=} 0$

$(0) \cdot (-70) \stackrel{?}{=} 0$

$0 = 0$ ✓

Check solution #2:

$(3x + 18)(7x - 28) = 0$

$(3(4) + 18)(7(4) - 28) \stackrel{?}{=} 0$

$(12 + 18)(28 - 28) \stackrel{?}{=} 0$

$(30)(0) \stackrel{?}{=} 0$

$0 = 0$ ✓

2. $x^2 - 4x - 32 = 0$ *HINT :: Convert to factored form first*

	x	-8
x	x^2	$-8x$
4	$4x$	-32

$\Rightarrow$ $(x+4)(x-8) = 0$

$x+4=0$ OR $x-8=0$

$x=-4$ $x=8$

Check your solutions by substituting into the *original* equation:

Check solution #1: $x=-4$

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

$(-4)^2 - 4(-4) - 32 \stackrel{?}{=} 0$

$16 + 16 - 32 \stackrel{?}{=} 0$

$0 = 0$ ✓

Check solution #2: $x=8$

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

$(8)^2 - 4(8) - 32 \stackrel{?}{=} 0$

$64 - 32 - 32 \stackrel{?}{=} 0$

$0 = 0$ ✓