



Math SN4 Bridge



Quadratic Equations  
Perfect Square Method  
Extra Practice

#1  $x^2 = 100$

$$\sqrt{x^2} = \sqrt{100}$$

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 $x = 10$

$x = -10$

The solutions are 10 & -10.

$$\#2 \quad x^2 - 16 = 0$$

$$x^2 - 16 + 16 = 0 + 16$$

$$x^2 = 16$$

$$\sqrt{x^2} = \sqrt{16}$$

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$$x = 4$$

$$x = -4$$

The solutions are 4 & -4.

$$\#3 \quad (y + 1)^2 = 25$$

$$\sqrt{(y + 1)^2} = \sqrt{25}$$

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$$y + 1 = 5$$

$$y = 4$$

$$y + 1 = -5$$

$$y = -6$$

The solutions are 4 & -6.

$$\#4 \quad 2j^2 = 32$$

$$\frac{2j^2}{2} = \frac{32}{2}$$

$$j^2 = 16$$

$$\sqrt{j^2} = \sqrt{16}$$

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$$j = 4$$

$$j = -4$$

The solutions are 4 & -4.

$$\#5 \quad 3x^2 = 48 \quad \frac{3x^2}{3} = \frac{48}{3}$$

$$x^2 = 16$$

$$\sqrt{x^2} = \sqrt{16}$$

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$$x = 4$$

$$x = -4$$

The solutions are 4 & -4.

$$\#6 \quad y^2 + 5 = 54$$

$$y^2 + 5 - 5 = 54 - 5$$

$$y^2 = 49$$

$$\sqrt{y^2} = \sqrt{49}$$

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$$y = 7$$

$$y = -7$$

The solutions are 7 & -7.

$$\#7 \quad m^2 - 7 = 74$$

$$m^2 - 7 + 7 = 74 + 7$$

$$m^2 = 81$$

$$\sqrt{m^2} = \sqrt{81}$$

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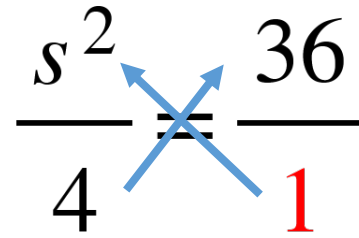
$$m = 9$$

$$m = -9$$

The solutions are 9 & -9.



#8  $\frac{s^2}{4} = 36$

$$\frac{s^2}{4} = \frac{36}{1}$$
A diagram showing the cross-multiplication of the equation s^2/4 = 36/1. Two blue arrows originate from the denominator 4 and point to the numerator 36. Two other blue arrows originate from the denominator 1 and point to the numerator s^2. A red '1' is written below the denominator 1.

Cross multiply

$$s^2 = 144$$

$$\sqrt{s^2} = \sqrt{144}$$

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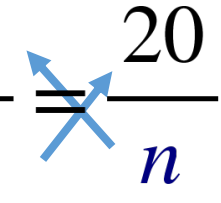
$$s = 12$$

$$s = -12$$

The solutions are 12 & -12.

#9  $\frac{n}{5} = \frac{20}{n}$

$\frac{n}{5} = \frac{20}{n}$

A diagram showing the cross-multiplication of the equation n/5 = 20/n. Two blue arrows originate from the 'n' in the numerator of the left fraction and point to the 'n' in the denominator of the right fraction. Another two blue arrows originate from the '5' in the denominator of the left fraction and point to the '20' in the numerator of the right fraction.

Cross multiply

$$n^2 = 100$$

$$\sqrt{n^2} = \sqrt{100}$$

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$$n = 10$$

$$n = -10$$

The solutions are 10 & -10.

$$\#10 \quad (x - 3)^2 = 16$$

$$\sqrt{(x - 3)^2} = 16$$

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$$(x - 3) = 4$$

$$x - 3 + 3 = 4 + 3$$

$$x = 7$$

$$(x - 3) = -4$$

$$x - 3 + 3 = -4 + 3$$

$$x = -1$$

The solutions are 7 & -1.

$$\#11 - 0.1(x-2)^2 + 3 = 1.4$$

$$-0.1(x-2)^2 + 3 = 1.4$$

$$-0.1(x-2)^2 + 3 - 3 = 1.4 - 3$$

$$\frac{-0.1(x-2)^2}{-0.1} = \frac{-1.6}{-0.1}$$

$$\sqrt{(x-2)^2} = \sqrt{16}$$

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$$(x-2) = 4$$

$$x-2 + 2 = 4 + 2$$

$$x = 6$$

$$(x-2) = -4$$

$$x-2 + 2 = -4 + 2$$

$$x = -2$$

The solutions are 6 & -2.

$$\#12 \quad -0.25(x - 6.2)^2 + 2.56 = 0$$

$$-0.25(x - 6.2)^2 + 2.56 = 0$$

$$-0.25(x - 6.2)^2 + 2.56 - 2.56 = 0 - 2.56$$

$$\frac{-0.25(x - 6.2)^2}{-0.25} = \frac{-2.56}{-0.25}$$

$$(x - 6.2)^2 = 10.24$$

$$\sqrt{(x - 6.2)^2} = \sqrt{10.24}$$

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$$(x - 6.2) = 3.2$$

$$x - 6.2 + 6.2 = 3.2 + 6.2$$

$$x = 9.4$$

$$(x - 6.2) = -3.2$$

$$x - 6.2 + 6.2 = -3.2 + 6.2$$

$$x = 3$$

The solutions are 9.4 & 3.

$$\#13 \quad 4(x - 20)^2 - 144 = 0$$

$$4(x - 20)^2 - 144 = 0$$

$$4(x - 20)^2 - 144 + 144 = 0 + 144$$

$$4(x - 20)^2 = 144$$

$$\frac{4(x - 20)^2}{4} = \frac{144}{4}$$

$$(x - 20)^2 = 36$$

$$\sqrt{(x - 20)^2} = \sqrt{36}$$

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$$(x - 20) = 6$$

$$x - 20 + 20 = 6 + 20$$

$$x = 26$$

$$(x - 20) = -6$$

$$x - 20 + 20 = -6 + 20$$

$$x = 14$$

The solutions are 26 & 14.

#14

$$-(x-20)^2 + 576 = 0$$

$$-(x-20)^2 + 576 = 0$$

$$-(x-20)^2 + 576 - 576 = 0 - 576$$

$$-(x-20)^2 = -576$$

$$\frac{-(x-20)^2}{-1} = \frac{-576}{-1}$$

$$(x-20)^2 = 576$$

$$\sqrt{(x-20)^2} = \sqrt{576}$$

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$$(x-20) = 24$$

$$x - 20 + 20 = 24 + 20$$

$$x = 44$$

$$(x-20) = -24$$

$$x - 20 + 20 = -24 + 20$$

$$x = -4$$

The solutions are 44 & -4.

#15

$$-0.02(x+5)^2 = -2$$

$$\begin{aligned} -0.02(x+5)^2 &= -2 \\ \frac{-0.02(x+5)^2}{-0.02} &= \frac{-2}{-0.02} \end{aligned}$$

$$(x+5)^2 = 100$$

$$\sqrt{(x+5)^2} = \sqrt{100}$$

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$$(x+5) = 10$$

$$x+5 - 5 = 10 - 5$$

$$x = 5$$

$$(x+5) = -10$$

$$x+5 - 5 = -10 - 5$$

$$x = -15$$

The solutions are 5 & -15.