

Key

Solving Quadratics: Square Roots Method

Today we will solve quadratics using square roots. This method only works when there is no "x" term.

$$ax^2 + c = 0$$

Steps	$x^2 - 49 = 0$
Step 1: Isolate x^2	$\begin{array}{r} +49 \quad +49 \\ \hline x^2 = 49 \end{array}$
Step 2: Take the SQUARE ROOT of both sides	$\begin{array}{r} \sqrt{x^2 = 49} \\ x = \pm 7 \end{array}$

Directions: Use the Square Roots Method to solve each quadratic equation:

<p>1. $x^2 - 16 = 0$</p> $\begin{array}{r} +16 \quad +16 \\ \hline \sqrt{x^2 = 16} \\ x = \pm 4 \end{array}$	<p>2. $x^2 - 100 = 0$</p> $\begin{array}{r} +100 \quad +100 \\ \hline \sqrt{x^2 = 100} \\ x = \pm 10 \end{array}$	<p>3. $x^2 + 25 = 0$</p> $\begin{array}{r} -25 \quad -25 \\ \hline \sqrt{x^2 = -25} \\ \text{No Solutions} \end{array}$
<p>4. $x^2 + 7 = 88$</p> $\begin{array}{r} -7 \quad -7 \\ \hline \sqrt{x^2 = 81} \\ x = \pm 9 \end{array}$	<p>5. $x^2 + 7 = 4$</p> $\begin{array}{r} -7 \quad -7 \\ \hline \sqrt{x^2 = -3} \\ \text{No Solutions} \end{array}$	<p>6. $x^2 - 5 = -4$</p> $\begin{array}{r} +5 \quad +5 \\ \hline \sqrt{x^2 = 1} \\ x = \pm 1 \end{array}$
<p>7. $6x^2 = 54$</p> $\begin{array}{r} \frac{6}{6} \quad \frac{6}{6} \\ \hline \sqrt{x^2 = 9} \\ x = \pm 3 \end{array}$	<p>8. $-2x^2 = -98$</p> $\begin{array}{r} \frac{-2}{-2} \quad \frac{-2}{-2} \\ \hline \sqrt{x^2 = 49} \\ x = \pm 7 \end{array}$	<p>9. $\frac{3}{4}x^2 = 12$</p> $\begin{array}{r} \frac{4}{3} \cdot \frac{3}{4} x^2 = \frac{4}{3} \cdot 12 \\ \hline \sqrt{x^2 = 16} \\ x = \pm 4 \end{array}$
<p>10. $\frac{1}{2}x^2 - 5 = 45$</p> $\begin{array}{r} +5 \quad +5 \\ \hline 2 \cdot \frac{1}{2}x^2 = 50 \\ \hline \sqrt{x^2 = 100} \\ x = \pm 10 \end{array}$	<p>11. $3x^2 = 432$</p> $\begin{array}{r} \frac{3}{3} \quad \frac{3}{3} \\ \hline \sqrt{x^2 = 144} \\ x = \pm 12 \end{array}$	<p>12. $-4x^2 = -16$</p> $\begin{array}{r} \frac{-4}{-4} \quad \frac{-4}{-4} \\ \hline \sqrt{x^2 = 4} \\ x = \pm 2 \end{array}$

<p>13. $3x^2 - 108 = 0$</p> $\begin{array}{r} +108 \quad +108 \\ \hline 3x^2 = 108 \\ \frac{3}{3} \quad \frac{108}{3} \\ \hline x^2 = 36 \\ \sqrt{x^2} = \pm 6 \end{array}$	<p>14. $5x^2 - 45 = 0$</p> $\begin{array}{r} +45 \quad +45 \\ \hline 5x^2 = 45 \\ \frac{5}{5} \quad \frac{45}{5} \\ \hline x^2 = 9 \\ \sqrt{x^2} = \pm 3 \end{array}$	<p>15. $\frac{1}{2}x^2 - 3 = 29$</p> $\begin{array}{r} +3 \quad +3 \\ \hline \frac{1}{2}x^2 = 32 \\ \frac{2}{2} \quad \frac{32}{2} \\ \hline x^2 = 64 \\ \sqrt{x^2} = \pm 8 \end{array}$
<p>16. $9x^2 - 16 = 0$</p> $\begin{array}{r} +16 \quad +16 \\ \hline 9x^2 = 16 \\ \frac{9}{9} \quad \frac{16}{9} \\ \hline x^2 = \frac{16}{9} \\ \sqrt{x^2} = \pm \frac{4}{3} \end{array}$	<p>17. $4x^2 - 1 = 24$</p> $\begin{array}{r} +1 \quad +1 \\ \hline 4x^2 = 25 \\ \frac{4}{4} \quad \frac{25}{4} \\ \hline x^2 = \frac{25}{4} \\ \sqrt{x^2} = \pm \frac{5}{2} \end{array}$	<p>18. $49x^2 + 16 = 8$</p> $\begin{array}{r} -16 \quad -16 \\ \hline 49x^2 = -8 \\ \frac{49}{49} \quad \frac{-8}{49} \\ \hline x^2 = -\frac{8}{49} \quad \text{No Solutions} \end{array}$
<p>19. $x^2 = 19$</p> $x = \pm 4.4$	<p>20. $x^2 - 41 = 0$</p> $\begin{array}{r} +41 \quad +41 \\ \hline x^2 = 41 \\ \sqrt{x^2} = \pm 6.4 \end{array}$	<p>21. $x^2 + 5 = 17$</p> $\begin{array}{r} -5 \quad -5 \\ \hline x^2 = 12 \\ \sqrt{x^2} = \pm 3.5 \end{array}$
<p>22. $2x^2 - 126 = 0$</p> $\begin{array}{r} +126 \quad +126 \\ \hline 2x^2 = 126 \\ \frac{2}{2} \quad \frac{126}{2} \\ \hline x^2 = 63 \\ \sqrt{x^2} = \pm 7.9 \end{array}$	<p>23. $36x^2 = 100$</p> $\begin{array}{r} \frac{36}{36} \quad \frac{100}{36} \\ \hline x^2 = \frac{100}{36} \\ \sqrt{x^2} = \pm \frac{10}{6} = \pm \frac{5}{3} \end{array}$	<p>24. $-8x^2 - 6 = -30$</p> $\begin{array}{r} +6 \quad +6 \\ \hline -8x^2 = -24 \\ \frac{-8}{-8} \quad \frac{-24}{-8} \\ \hline x^2 = 3 \\ \sqrt{x^2} = \pm 1.7 \end{array}$
<p>25. $\frac{1}{3}x^2 + 2 = 14$</p> $\begin{array}{r} -2 \quad -2 \\ \hline \frac{1}{3}x^2 = 12 \\ \frac{3}{3} \quad \frac{12 \cdot 3}{3} \\ \hline x^2 = 36 \\ \sqrt{x^2} = \pm 6 \end{array}$	<p>26. $\frac{4}{5}x^2 - 1 = 7$</p> $\begin{array}{r} +1 \quad +1 \\ \hline \frac{4}{5}x^2 = 8 \\ \frac{5}{5} \quad \frac{8 \cdot 5}{5} \\ \hline x^2 = 10 \\ \sqrt{x^2} = \pm 3.2 \end{array}$	<p>27. $\frac{3}{4}(x^2 - 17) = \frac{4}{3}$</p> $\begin{array}{r} \frac{4}{3} \quad \frac{4}{3} \\ \hline x^2 - 17 = 8 \\ +17 \quad +17 \\ \hline x^2 = 25 \\ \sqrt{x^2} = \pm 5 \end{array}$
<p>28. $6x^2 + 3 = 387$</p> $\begin{array}{r} -3 \quad -3 \\ \hline 6x^2 = 384 \\ \frac{6}{6} \quad \frac{384}{6} \\ \hline x^2 = 64 \\ \sqrt{x^2} = \pm 8 \end{array}$	<p>29. $7x^2 - 7 = 168$</p> $\begin{array}{r} +7 \quad +7 \\ \hline 7x^2 = 175 \\ \frac{7}{7} \quad \frac{175}{7} \\ \hline x^2 = 25 \\ \sqrt{x^2} = \pm 5 \end{array}$	<p>30. $25x^2 + 10 = 46$</p> $\begin{array}{r} -10 \quad -10 \\ \hline 25x^2 = 36 \\ \frac{25}{25} \quad \frac{36}{25} \\ \hline x^2 = \frac{36}{25} \\ \sqrt{x^2} = \pm \frac{6}{5} \end{array}$

What time is it?

10:10 and 35 sec

