

Solve Quadratic Equations Worksheet

MathHub.Club

Use the Quadratic Formula

Problems

1: $7x^2 + 2x - 4 = 0$.

2: $4x^2 + 6x - 3 = 0$.

3: $2x^2 - 9x + 9 = 0$.

4: $8x^2 - x + 5 = 0$.

5: $5x^2 + 5x + 10 = 0$.

6: $x^2 - 5x + 7 = 0$.

7: $6x^2 + 7x + 8 = 0$.

8: $5x^2 + 6x - 4 = 0$.

9: $4x^2 - 6x - 7 = 0$.

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

Solutions

Solution to Problem 1: To solve $7x^2 + 2x - 4 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 7$, $b = 2$, and $c = -4$.

Substituting these values into the formula gives:

$$x = \frac{-(2) \pm \sqrt{(2)^2 - 4 \cdot 7 \cdot (-4)}}{2 \cdot 7}$$

Simplifying further gives:

$$x = -\frac{1}{7} + \frac{\sqrt{29}}{7}$$

$$x = -\frac{1}{7} - \frac{\sqrt{29}}{7}$$

Solution to Problem 2: To solve $4x^2 + 6x - 3 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 4$, $b = 6$, and $c = -3$.

Substituting these values into the formula gives:

$$x = \frac{-(6) \pm \sqrt{(6)^2 - 4 \cdot 4 \cdot (-3)}}{2 \cdot 4}$$

Simplifying further gives:

$$x = -\frac{3}{4} + \frac{\sqrt{21}}{4}$$

$$x = -\frac{3}{4} - \frac{\sqrt{21}}{4}$$

Solution to Problem 3: To solve $2x^2 - 9x + 9 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 2$, $b = -9$, and $c = 9$.

Substituting these values into the formula gives:

$$x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4 \cdot 2 \cdot (9)}}{2 \cdot 2}$$

Simplifying further gives:

$$x = \frac{3}{2}$$

$$x = 3$$

Solution to Problem 4: To solve $8x^2 - x + 5 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 8$, $b = -1$, and $c = 5$.

Substituting these values into the formula gives:

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4 \cdot 8 \cdot (5)}}{2 \cdot 8}$$

Simplifying further gives:

$$x = \frac{1}{16} - \frac{i\sqrt{159}}{16}$$

$$x = \frac{1}{16} + \frac{i\sqrt{159}}{16}$$

Solution to Problem 5: To solve $5x^2 + 5x + 10 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 5$, $b = 5$, and $c = 10$.

Substituting these values into the formula gives:

$$x = \frac{-(5) \pm \sqrt{(5)^2 - 4 \cdot 5 \cdot (10)}}{2 \cdot 5}$$

Simplifying further gives:

$$x = -\frac{1}{2} - \frac{i\sqrt{7}}{2}$$

$$x = -\frac{1}{2} + \frac{i\sqrt{7}}{2}$$

Solution to Problem 6: To solve $x^2 - 5x + 7 = 0 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 1$, $b = -5$, and $c = 7$.

Substituting these values into the formula gives:

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \cdot 1 \cdot (7)}}{2 \cdot 1}$$

Simplifying further gives:

$$x = \frac{5}{2} - \frac{i\sqrt{3}}{2}$$

$$x = \frac{5}{2} + \frac{i\sqrt{3}}{2}$$

Solution to Problem 7: To solve $6x^2 + 7x + 8 = 0 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 6$, $b = 7$, and $c = 8$.

Substituting these values into the formula gives:

$$x = \frac{-(7) \pm \sqrt{(7)^2 - 4 \cdot 6 \cdot (8)}}{2 \cdot 6}$$

Simplifying further gives:

$$x = -\frac{7}{12} - \frac{i\sqrt{143}}{12}$$

$$x = -\frac{7}{12} + \frac{i\sqrt{143}}{12}$$

Solution to Problem 8: To solve $5x^2 + 6x - 4 = 0 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 5$, $b = 6$, and $c = -4$.

Substituting these values into the formula gives:

$$x = \frac{-(6) \pm \sqrt{(6)^2 - 4 \cdot 5 \cdot (-4)}}{2 \cdot 5}$$

Simplifying further gives:

$$x = -\frac{3}{5} + \frac{\sqrt{29}}{5}$$

$$x = -\frac{3}{5} - \frac{\sqrt{29}}{5}$$

Solution to Problem 9: To solve $4x^2 - 6x - 7 = 0 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 4$, $b = -6$, and $c = -7$.

Substituting these values into the formula gives:

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4 \cdot 4 \cdot (-7)}}{2 \cdot 4}$$

Simplifying further gives:

$$x = \frac{3}{4} - \frac{\sqrt{37}}{4}$$

$$x = \frac{3}{4} + \frac{\sqrt{37}}{4}$$

Solution to Problem 10: To solve $3x^2 + 5x - 7 = 0 = 0$, we use the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$. Here, $a = 3$, $b = 5$, and $c = -7$.

Substituting these values into the formula gives:

$$x = \frac{-(5) \pm \sqrt{(5)^2 - 4 \cdot 3 \cdot (-7)}}{2 \cdot 3}$$

Simplifying further gives:

$$x = -\frac{5}{6} + \frac{\sqrt{109}}{6}$$

$$x = -\frac{5}{6} - \frac{\sqrt{109}}{6}$$