
ALGEBRA: SOLVING QUADRATICS**Best Guess Mastery Worksheet (Target Grade 6/7)****I Do**

Solve $5x^2 - 6x - 3 = 0$

Give your solutions correct to 3 significant figures.

Show your working clearly.

$$x = \dots\dots\dots \text{ or } x = \dots\dots\dots$$

We Do

Solve $3x^2 + 8x + 2 = 0$

Give your solutions correct to 3 significant figures.

Show your working clearly.

$$x = \dots\dots\dots \text{ or } x = \dots\dots\dots$$

ALGEBRA: SOLVING QUADRATICS**Best Guess Mastery Worksheet (Target Grade 6/7)****You Do 1**

Solve $2x^2 - 5x - 9 = 0$

Give your solutions correct to 3 significant figures.

Show your working clearly.

$$x = \dots\dots\dots \text{ or } x = \dots\dots\dots$$

You Do 2

Solve $4x^2 + 7x - 5 = 0$

Give your solutions correct to 3 significant figures.

Show your working clearly.

$$x = \dots\dots\dots \text{ or } x = \dots\dots\dots$$

ALGEBRA: SOLVING QUADRATICS (REARRANGING)**Best Guess Mastery Worksheet (Target Grade 7/8)****Challenge 1**

Solve $x(3x + 4) = 11$

Give your solutions correct to 3 significant figures.

Show your working clearly.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

Challenge 2

Solve $\frac{5}{x} + \frac{2}{x-1} = 3$

Give your solutions correct to 3 significant figures.

Show your working clearly.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

Answers & Worked Solutions

I Do:

1. Formula: $x = [-b \pm \sqrt{b^2 - 4ac}] / 2a$
2. $a = 5, b = -6, c = -3$
3. $x = [-(-6) \pm \sqrt{(-6)^2 - 4(5)(-3)}] / 2(5) = [6 \pm \sqrt{36 + 60}] / 10 = [6 \pm \sqrt{96}] / 10$
4. $x = 1.5797... \text{ or } -0.3797... \rightarrow x = \mathbf{1.58} \text{ or } x = \mathbf{-0.380}$ (to 3 s.f.)

We Do:

1. $a = 3, b = 8, c = 2$
2. $x = [-8 \pm \sqrt{8^2 - 4(3)(2)}] / 2(3) = [-8 \pm \sqrt{64 - 24}] / 6 = [-8 \pm \sqrt{40}] / 6$
3. $x = -0.2792... \text{ or } -2.387... \rightarrow x = \mathbf{-0.279} \text{ or } x = \mathbf{-2.39}$ (to 3 s.f.)

You Do 1:

1. $a = 2, b = -5, c = -9$
2. $x = [5 \pm \sqrt{(-5)^2 - 4(2)(-9)}] / 4 = [5 \pm \sqrt{25 + 72}] / 4 = [5 \pm \sqrt{97}] / 4$
3. $x = 3.712... \text{ or } -1.212... \rightarrow x = \mathbf{3.71} \text{ or } x = \mathbf{-1.21}$ (to 3 s.f.)

You Do 2:

1. $a = 4, b = 7, c = -5$
2. $x = [-7 \pm \sqrt{7^2 - 4(4)(-5)}] / 8 = [-7 \pm \sqrt{49 + 80}] / 8 = [-7 \pm \sqrt{129}] / 8$
3. $x = 0.5447... \text{ or } -2.294... \rightarrow x = \mathbf{0.545} \text{ or } x = \mathbf{-2.29}$ (to 3 s.f.)

Challenge 1:

1. Expand and rearrange: $3x^2 + 4x - 11 = 0$
2. $x = [-4 \pm \sqrt{4^2 - 4(3)(-11)}] / 6 = [-4 \pm \sqrt{16 + 132}] / 6 = [-4 \pm \sqrt{148}] / 6$
3. $x = 1.3609... \text{ or } -2.694... \rightarrow x = \mathbf{1.36} \text{ or } x = \mathbf{-2.69}$ (to 3 s.f.)

Challenge 2:

1. Common denominator: $5(x - 1) + 2x = 3x(x - 1)$
2. Expand: $5x - 5 + 2x = 3x^2 - 3x \rightarrow 7x - 5 = 3x^2 - 3x$
3. Rearrange to = 0: $3x^2 - 10x + 5 = 0$
4. $x = [10 \pm \sqrt{(-10)^2 - 4(3)(5)}] / 6 = [10 \pm \sqrt{100 - 60}] / 6 = [10 \pm \sqrt{40}] / 6$
5. $x = 2.720... \text{ or } 0.6125... \rightarrow x = \mathbf{2.72} \text{ or } x = \mathbf{0.613}$ (to 3 s.f.)