

Name:

Level 2 Further Maths



Quadratic Formula

Corbettmaths

Ensure you have: Pencil or pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Revision for this topic

www.corbettmaths.com/more/further-maths/



1. Solve $x^2 - 4x + 2 = 0$

Give your answers to 1 decimal place.

$$a = 1$$

$$b = -4$$

$$c = 2$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{4 \pm \sqrt{16 - (8)}}{2}$$

$$x = \frac{4 \pm \sqrt{8}}{2}$$

$$x = 3.4 \quad \text{or} \quad x = 0.6$$

.....
(2)

2. Solve $x^2 - x - 11 = 0$

Give your answers to 1 decimal place.

$$a = 1 \quad b = -1 \quad c = -11$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{1 \pm \sqrt{1 - (-44)}}{2}$$

$$x = \frac{1 \pm \sqrt{45}}{2}$$

$$x = 3.9 \quad \text{or} \quad x = -2.9$$

.....
(2)

3. Solve $4x^2 + 8x + 3 = 0$

Give your answers to 1 decimal place.

$$a = 4 \quad b = 8 \quad c = 3$$

$$x = \frac{-8 \pm \sqrt{64 - (48)}}{8}$$

$$x = -0.5 \quad \text{or} \quad x = -1.5$$

.....
(2)

4. Solve $3x^2 - 23x - 67 = 0$

Give your answers to 1 decimal place.

$$a = 3 \quad b = -23 \quad c = -67$$

$$x = \frac{23 \pm \sqrt{529 - (-804)}}{6}$$

$$x = 9.9 \quad \text{or} \quad x = -2.3$$

.....
(2)

5. Solve $2x^2 = 9x + 40$

Give your answers to 1 decimal place.

$$2x^2 - 9x - 40 = 0$$

$$a = 2 \quad b = -9 \quad c = -40$$

$$x = \frac{9 \pm \sqrt{81 - (-320)}}{4}$$

$$x = 7.3 \quad \text{or} \quad x = -2.8$$

.....
(2)

6. Solve $4x^2 - 9 = 2x^2 + 4x$

Give your answers to 1 decimal place.

$$2x^2 - 4x - 9 = 0$$

$$a = 2 \quad b = -4 \quad c = -9$$

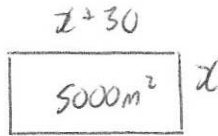
$$x = \frac{4 \pm \sqrt{16 - (-72)}}{4}$$

$$x = 3.3 \quad \text{or} \quad x = -1.3$$

.....
(2)

7. A rectangular field is 30m longer than it is wide.
The area of the field is 5000m²

Calculate the length of the field.



$$x = \frac{-30 \pm \sqrt{900 - (-20000)}}{2}$$

$$x = 57.3 \text{ or } x = -87.3$$

~~X~~

$$x(x+30) = 5000$$

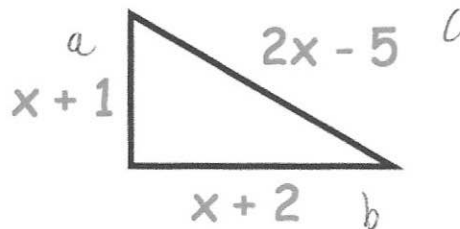
$$x^2 + 30x - 5000 = 0$$

$$a=1 \quad b=30 \quad c=-5000$$

$$87.3 \quad (\text{to 1 dp})$$

.....m
(3)

8. Below is a right angled triangle.



Find the possible values of x .

$$(x+1)^2 + (x+2)^2 = (2x-5)^2$$

$$x^2 + 2x + 1 + x^2 + 4x + 4 = 4x^2 - 20x + 25$$

$$2x^2 + 6x + 5 = 4x^2 - 20x + 25$$

$$0 = 2x^2 - 26x + 20$$

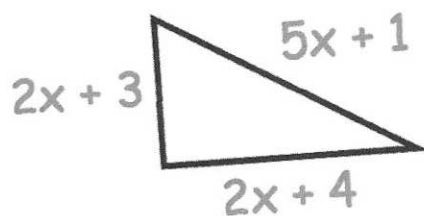
$$0 = x^2 - 13x + 10$$

$$x = 12.18 \text{ or } x = 0.82$$

~~X~~

.....
(4)

9. Below is a right angled triangle.



Find the possible values of x .

$$(2x + 3)^2 + (2x + 4)^2 = (5x + 1)^2$$

$$4x^2 + 12x + 9 + 4x^2 + 16x + 16 = 25x^2 + 10x + 1$$

$$8x^2 + 28x + 25 = 25x^2 + 10x + 1$$

$$0 = 17x^2 - 18x - 24$$

$$a = 17 \quad b = -18 \quad c = -24$$

$$x = -0.77 \quad \text{or} \quad x = 1.83$$

\times \checkmark

1.83

(4)