

# Quadratic Equations

## Question Paper 10

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Algebra and Graphs
Sub-Topic	Solving Equations – Quadratic Equations
Booklet	Question Paper 10

**Time Allowed:** 50 minutes

**Score:** /41

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1 Factorise completely.

(a)  $yp + yt + 2xp + 2xt$

Answer(a) ..... [2]

(b)  $7(h + k)^2 - 21(h + k)$

Answer(b) ..... [2]

2 On the first part of a journey, Alan drove a distance of  $x$  km and his car used 6 litres of

The rate of fuel used by his car was  $\frac{600}{x}$  litres per 100 km.

(a) Alan then drove another  $(x + 20)$  km and his car used another 6 litres of fuel.

- (i) Write down an expression, in terms of  $x$ , for the rate of fuel used by his car on this part of the journey.  
Give your answer in litres per 100 km.

Answer(a)(i) ..... litres per 100 km [1]

(ii) On this part of the journey the rate of fuel used by the car **decreased** by 1.5 litres per 100 km.

Show that  $x^2 + 20x - 8000 = 0$ .

Answer(a)(ii)

[4]

(b) Solve the equation  $x^2 + 20x - 8000 = 0$ .

Answer(b)  $x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [3]

(c) Find the rate of fuel used by Alan's car for the complete journey.  
Give your answer in litres per 100 km.

Answer(c) ..... litres per 100 km [2]

3 (a) Factorise  $x^2 - 3x - 10$ .

Answer(a) ..... [2]

(b) (i) Show that  $\frac{x+2}{x+1} + \frac{3}{x}$

$$x^2 - 2x - 3 = 0.$$

Answer(b)(i)

[3]

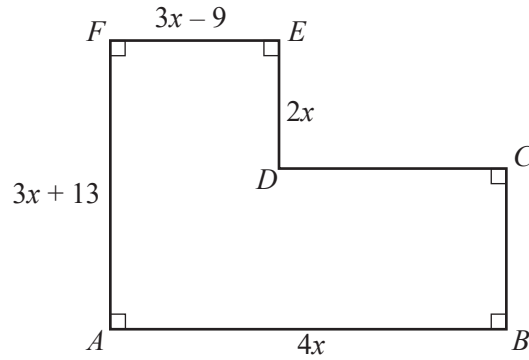
(ii) Solve  $2x^2 - 2x - 3 = 0$ .  
Give your answers correct to 3 decimal places.  
Show all your working.

Answer(b)(ii)  $x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [4]

(c) Simplify  $\frac{2x+3}{x+2} - \frac{x}{x+1}$ .

Answer(c) ..... [4]

- 4 (a) The area of shape  $ABCDEF$  is  $24 \text{ cm}^2$ .  
All lengths are in centimetres.



NOT TO SCALE

- (i) Show that  $5x^2 + 17x - 12 = 0$ .

Answer(a)(i)

[3]

- (ii) Solve, by factorising, the equation  $5x^2 + 17x - 12 = 0$ .  
You must show all your working.

Answer(a)(ii)  $x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [3]

- (b) Solve the simultaneous equations.  
You must show all your working.

$$3x - 2y = 23$$

$$-4x - y = -5$$

Answer(b)  $x = \dots\dots\dots$

$y = \dots\dots\dots$  [3]

- (c) Solve the equation.

$$\frac{2(t+3)}{t} - \frac{t}{t+3} = 1$$

Answer(c)  $t = \dots\dots\dots$  [5]