

Solving Quadratic Equations

Question Paper

Course	Edexcel IGCSE Maths
Section	2. Equations, Formulae & Identities
Topic	Solving Quadratic Equations
Difficulty	Very Hard

Time allowed: 70
Score: /57
Percentage: /100

Question 1

Solve $x^2 = 4(x-3)^2$

[3 marks]

Question 2a

Solve $2x^2 + 9x - 7 = 0$

Give your solutions correct to 3 significant figures.

[3 marks]

Question 2b

Solve $\frac{2}{y^2} + \frac{9}{y} - 7 = 0$

Give your solutions correct to 3 significant figures.

[2 marks]

Question 3

Given that

$$2x - 1 : x - 4 = 16x + 1 : 2x - 1$$

find the possible values of x .

[5 marks]

Question 4a

The diagram shows a trapezium.

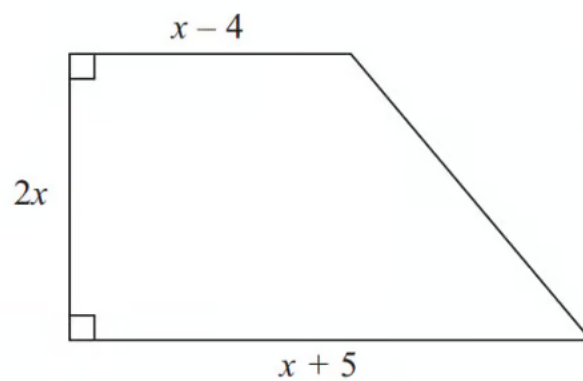


Diagram **NOT**
accurately drawn

All the measurements are in centimetres.

The area of the trapezium is 351 cm^2 .

Show that $2x^2 + x - 351 = 0$

[2 marks]

Question 4b

Work out the value of x .

[3 marks]

Question 5

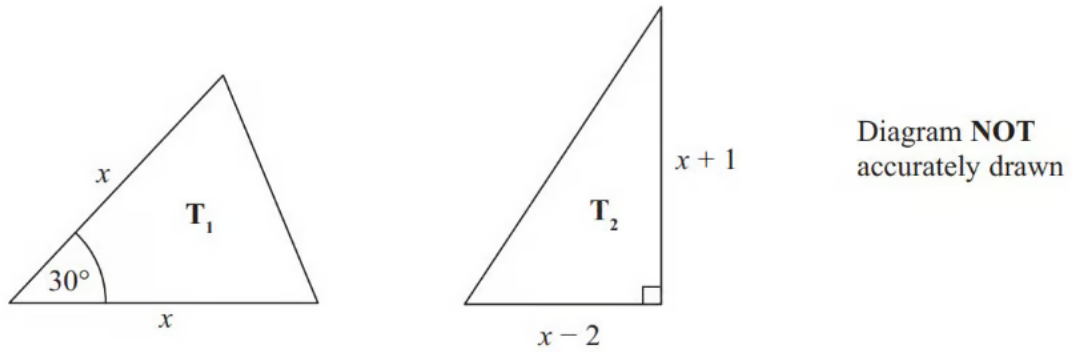
Given that

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

find the possible values of x .

[4 marks]

Question 6



The lengths of the sides are in centimetres.

The area of triangle T_1 is equal to the area of triangle T_2 .

Work out the value of x , giving your answer in the form $a + \sqrt{b}$ where a and b are integers.

[5 marks]

Question 7

Given that
$$M = \frac{18^{4n} \times 2^{3(n^2-6n)} \times 3^{2(1-4n)}}{12^2}$$

find the values of n for which $M = 2$

[5 marks]

Question 8a

The diagram shows a trapezium.

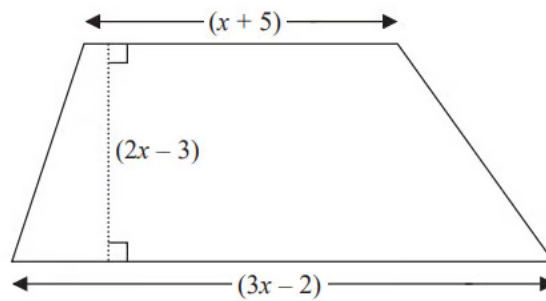


Diagram **NOT**
accurately drawn

All measurements shown on the diagram are in centimetres.

The area of the trapezium is 133 cm^2

Show that $8x^2 - 6x - 275 = 0$

[3 marks]

Question 8b

Find the value of x .

Show your working clearly.

[3 marks]

Question 9a

Express $7 - 4x - x^2$ in the form $p - (x + q)^2$ where p and q are constants.

[2 marks]

Question 9b

Use your answer to part (a) to solve the equation $7 - 4(y + 3) - (y + 3)^2 = 0$

Give your solutions in the form $e \pm \sqrt{f}$ where e and f are integers.

[3 marks]

Question 10

Solve $\frac{5}{4x+1} = \frac{2x}{x^2+3}$

Give your solutions to 3 significant figures.

You **must** show your working.

[5 marks]

Question 11

$y = 6x^4 + 7x^2$ and $x = \sqrt{w+1}$

Find the value of w when $y = 10$.

Show your working.

$w = \dots\dots\dots$

[6 marks]

Question 12

$6x^2 = 7xy + 20y^2$ where $x > 0$ and $y > 0$

Find the ratio $x:y$

[3 marks]