Test Revision

12 February 2020 10:08

Pg 46 Q 1 (i), (ii) (iii)(a)

Q2 (i)

T&T3 Test yourself 2

T&T3 Test yourself...

PROJECT MATHS

Text & Tests

Leaving 3 Certificate

Algebra 2: Quadratic Equations

chapter 2

Test yourself 2

Test yourself 2

1. (i) Factorise $2x^2 + 5x - 3$.
Hence solve the equation $2x^2 + 5x - 3 = 0$.

Test yourself 2

(ii) Solve for x and y these simultaneous equations:

$$y = 10 - 2x$$
$$x^2 + y^2 = 25.$$

Test yourself 2

(iii) Find the value of x in each of these equations:

(a) $9^{2x-3} = \frac{1}{27}$

(b) $3\sqrt{12} - \sqrt{27} = x\sqrt{3}$, where $x \in N$.

Test yourself 2

2. (i) Simplify $(2x - 3)^2 - (4x + 1)(x - 4)$.

Test yourself 2

(ii) Solve the equation $x^2 - 7x - 6 = 0$, giving your answers correct to two decimal places.

Test yourself 2

(iii) Express $\sqrt{50} - \sqrt{32} + 2\sqrt{8}$ in the form $k\sqrt{2}$, where $k \in N$.

Test yourself 2

(iv) Hence solve the equation $3(3^x) = \sqrt{27}$.

Test yourself 2

3. (i) Given that $3a - 2b = 4$, find the value of b when $a = -2$.

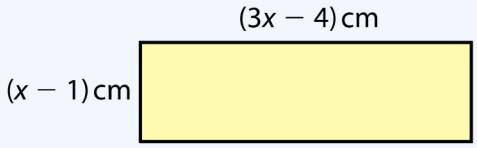
Test yourself 2

(ii) Solve for x and y the simultaneous equations

$$x + 2y = 3$$
$$x^2 - y^2 = 24.$$

Test yourself 2

(iii) The area of this rectangle is 24 cm^2.



Find the length and width of the rectangle.

Test yourself 2

4. (i) Simplify $\frac{2x^4 \times 6x^3}{3x^5}$.

Test yourself 2

(ii) Solve the equation $\frac{1}{x} + \frac{1}{x-1} = \frac{3}{2}$.

Test yourself 2

(iii) If $(n - 3)^2$ is a perfect square, which of the following expressions are perfect squares?

A $x^2 + 2x + 1$

B $x^2 - 12x + 12$

C $x^2 - 12x + 36$

D $x^2 - 18x + 81$

E $x^2 + 6x + 9$

F $x^2 + 6x + 36$

Test yourself 2

5. (i) If $x = 4$ is a root of the equation $2x^2 + kx - 20 = 0$, find the value of k.

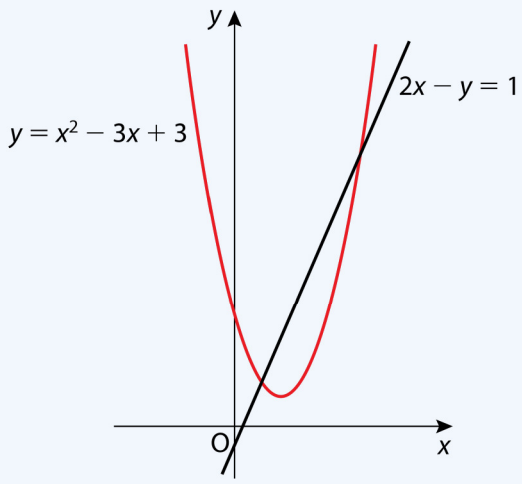
Test yourself 2

(ii) Solve these equations:

(a) $4x = 32$ (b) $4x = \sqrt{2}$

Test yourself 2

(iii) Find the points of intersection of the line and the curve in the given figure.



Test yourself 2

(iv) Solve for x the equation $\frac{3}{x+1} + \frac{1}{x-1} = 1$.

Give your answers in the form $a \pm \sqrt{b}$, where $a, b \in N$.

Test yourself 2

6. (i) Find the value of each of these:

(a) $8\frac{2}{3}$ (b) $25^{\frac{3}{2}}$ (c) $9^{-\frac{3}{2}}$

Test yourself 2

(ii) Solve for x and y these simultaneous equations:

$$x - 3y = 1$$

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

Test yourself 2

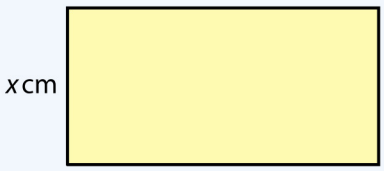
(iii) Express $\frac{2\sqrt{45}}{\sqrt{10}}$ in the form $k\sqrt{2}$, where $k \in N$.

Test yourself 2

(iv) If $3^{2x+1} = \frac{27}{\sqrt{3}}$, find the value of x.

Test yourself 2

7. The length of this rectangle is 7 cm longer than the width.
The width is x cm.



(i) Write an expression for
  (a) the length of the rectangle
  (b) the area of the rectangle.

(ii) The area of the rectangle is 44 cm^2.
  (a) Form an equation in x and solve it.
  (b) What is the perimeter of this rectangle?

Test yourself 2

8. (i) Given that $y = \frac{k}{k + w}$, find the value of y when $k = \frac{1}{2}$ and $w = \frac{1}{3}$.

Test yourself 2

(ii) Express $\frac{x}{x-1} - 1$ as a single fraction.

Hence solve the equation $\frac{x}{x-1} - 1 = \frac{x+1}{2}$, leaving your answers in $\sqrt{\ }$ form.

Test yourself 2

(iii) Solve the equation $4^{2x+1} = \sqrt{8}$.

Test yourself 2

(iv) Solve the equation $x - 3 = \sqrt{3x - 11}$ and verify your answer.

Answers Test yourself 2

1. (i) $(2x - 1)(x + 3)$; $-3, \frac{1}{2}$

(ii) (3, 4), (5, 0) (iii) (a) $\frac{3}{4}$ (b) 3

2. (i) $3x + 13$ (ii) 7.77, −0.77

(iii) $5\sqrt{2}$ (iv) $3^{\frac{3}{2}}$; $x = 2$

3. (i) $b = -5$ (ii) (5, −1), (−7, 5)

(iii) 8 cm, 3 cm

4. (i) $4x^2$ (ii) $\frac{1}{3}$,2 (iii) A, C, D, E

5. (i) $k = -3$ (ii) (a) $x = \frac{5}{2}$ (b) $x = \frac{1}{4}$

(iii) (1, 1), (4, 7)

(iv) $2 \pm \sqrt{3}$

6. (i) (a) 4 (b) 125 (c) $\frac{1}{27}$

(ii) $(\frac{1}{4}, -\frac{1}{4})$, $(-\frac{1}{2}, -\frac{1}{2})$

(iii) $3\sqrt{2}$

(iv) $x = \frac{3}{4}$

7. (i) (a) $(x + 7)$ cm (b) $(x^2 + 7x)$ cm^2

(ii) (a) $x = 4$ (b) 30 cm

8. (i) $\frac{3}{5}$ (ii) $\frac{1}{x - 1}$; $\pm\sqrt{3}$

(iii) $x = -\frac{1}{8}$ (iv) 4, 5