



Lite GCSE Maths

Linear Equations 1

Name: _____

Class: _____

Solutions

Author:

Date:

Time: **32**

Marks: **29**

Comments:

Q1. In the magic square, the rows, columns and diagonals add to the same number.

10	w	x
5	y	9
6	11	4

$10 + 5 + 6 = 21$
 So columns and rows
 each add to 21

Work out the values of w, x and y.

$$\begin{aligned} 9 + 4 + x &= 21 \\ 13 + x &= 21 \\ x &= 8 \end{aligned}$$

$$\begin{aligned} 5 + 9 + y &= 21 \\ 14 + y &= 21 \\ y &= 7 \end{aligned}$$

$$\begin{aligned} 10 + w + 8 &= 21 \\ 18 + w &= 21 \\ w &= 3 \end{aligned}$$

Answer $w = 3$ $x = 8$ $y = 7$

(Total 3 marks)

Q2. (a) If $x \diamond y$ means $2x + y$ find the value of $2 \diamond 8$

$$2(2) + 8 = 4 + 8 = 12$$

Answer 12

(1)

(b) If $m \blacktriangledown n$ means $\frac{m+n}{2}$ find the value of $4 \blacktriangledown 10$

$$\frac{4+10}{2} = \frac{14}{2} = 7$$

Answer 7

(2)

(c) Simplify $6a + 7b - 2a + b = 4a + 8b$

Answer $4a + 8b$

(2)

(d) Solve the equation $5w + 6 = 9 - w$

$$5w + w = 9 - 6$$

$$6w = 3$$

$$w = \frac{3}{6}$$

Answer $w = \frac{1}{2}$

(3)
(Total 8 marks)

Q3. (a) Solve the equation $\frac{x}{20} = -4$

$$x = -4 \times 20$$

$$x = -80$$

Answer $x = -80$

(1)

(b) Solve the equation $8w - 5 = 3w + 1$

$$8w - 3w = 1 + 5$$

$$5w = 6$$

$$w = \frac{6}{5}$$

Answer $w = \frac{6}{5}$

(3)

(c) Simplify

$$y + 2 \times y \times y = y + 2y^2$$

Answer or $y(1 + 2y)$

(1)

(d) Factorise

$$15t + 25 = 5(3t + 5)$$

Answer $5(3t + 5)$

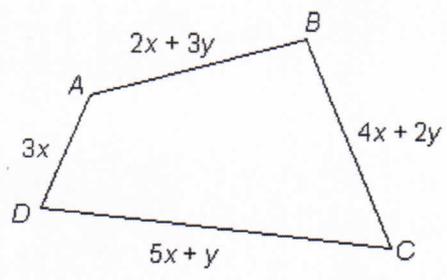
(1)

(e) Factorise $z^2 + 8z = z(z + 8)$

Answer $z(z + 8)$

(1)
(Total 7 marks)

Q4. ABCD is a quadrilateral.



Not drawn accurately

(a) Write down an expression for the perimeter of the quadrilateral in terms of x and y . Simplify your answer.

Perimeter = $3x + 2x + 3y + 4x + 2y + 5x + y$
 $= 14x + 6y$

Answer $14x + 6y$

(2)

(b) When $x = 4$ cm, the perimeter of the quadrilateral is 68 cm.

Find the value of y .

$14(4) + 6y = 68$

$56 + 6y = 68$

$6y = 68 - 56$

$6y = 12$

$y = \frac{12}{6}$

Answer $y = 2$ cm

(3)
(Total 5 marks)

Q5. (a) Solve the equation $\frac{x}{6} = 7$

$x = 7 \times 6$
 $x = 42$

.....
 Answer x = 42

(1)

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

.....
 $x + 1 = 3(2 - 3x)$
 $x + 1 = 6 - 9x$
 $x + 9x = 6 - 1$
 $10x = 5$
 $x = \frac{5}{10}$

.....
 Answer x = $\frac{1}{2}$

(3)

(Total 4 marks)

Q6. (a) You are given that $6x = 48$

Work out the value of $5x$

$x = \frac{48}{6}$
 $x = 8$

.....
 $5x = 8 \times 5$

.....
 Answer $5x = 40$

(2)

(b) Solve the equation $2(4y - 1) = 18$

.....
 $8y - 2 = 18$
 $8y = 18 + 2$
 $8y = 20$
 $y = \frac{20}{8}$

.....
 Answer y = $\frac{5}{2}$ or $2\frac{1}{2}$

$y = \frac{5}{2}$

(3)

(Total 5 marks)