

1 Solve

a $2x + 5 = 19$

$2x + 5 = 19$

$2x = 14$

$x = 7$

(M1)

(A1)

$x = 7$

(2 marks)

b $13 - 4y = 7$

$13 - 4y = 7$

$-4y = -6$

$y = \frac{6}{4}$ or $\frac{3}{2}$ (oe)

$y = \frac{3}{2}$

(2 marks)

2 $2y = ax + b$

a Find y when $x = 5$, $a = 3$, $b = -6$

$2y = (3 \times 5) + (-6)$

$2y = 15 - 6$

$2y = 9$

$y = 4.5$ (oe)

$y = 4.5$

(2 marks)

b Find x when $a = 2$, $y = 8$, $b = 5$

$2(8) = 2x + 5$

$16 = 2x + 5$

$11 = 2x$

$x = 5.5$ (oe)

(2 marks)

3 Solve

a $6x + 8 = 2x + 11$

$6x + 8 = 2x + 11$

$4x = 3$

$x = \frac{3}{4}$

(M1)

$x = \frac{3}{4}$

(A1)

b $12 - 4y = 2(y + 9)$

$12 - 4y = 2(y + 9)$

$12 - 4y = 2y + 18$

$-6y = 6$

$y = -1$

(5 marks)

4 Solve $\frac{x}{2} + 5 = 11$

$\frac{x}{2} + 5 = 11$

$\frac{x}{2} = 6$

$x = 12$

(M1)

(M1)

$x = 12$

(A1)

(3 mark)

5 Solve $4(t - 3) = 2t + 7$

$4(t - 3) = 2t + 7$

$4t - 12 = 2t + 7$

$2t = 19$

$t = \frac{19}{2}$ (oe)

(M1)

(M1)

$t = 9.5$

(A1)

(3 marks)

- 6 Find the solutions of
- $p^2 = 81$

$$p^2 = 81$$

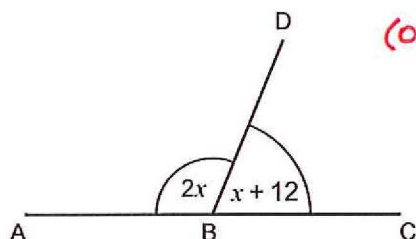
$$p = \pm 9$$

$$p = \pm 9$$

(A₁)
(A₁)

(1 mark)

- 7 ABC is a straight line.



$$(oe) \quad 3x + 12 = 180$$

$$3x = 168$$

$$x = 56$$

- a Form an equation in
- x
- .

$$3x + 12 = 180 \quad (B_1)$$

- b Solve the equation.

$$3x = 168 \quad (M_1)$$

$$x = 56 \quad (A_1)$$

 $x =$

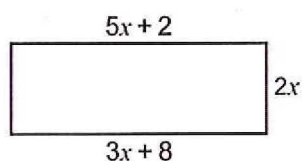
- c Find the size of angle ABD.

$$2 \times 56 = 112 \quad (B_1)$$

.....°

(4 marks)

- 8 Here is a rectangle.



All the measurements are in cm.

- a Form an equation in
- x
- .

$$5x + 2 = 3x + 8 \quad (B_1)$$

Solve for x

$$2x = 6 \quad (M_1)$$

$$x = 3 \quad (A_1)$$

- b Find the perimeter of the rectangle.

$$5x + 2 + 2x + 3x + 8 + 2x$$

(M₁)

$$12x + 10 \text{ cm}$$

(A₁)

46 cm

(5 marks)

9 Ben is y years old.

Liz is two years older than Ben.

James is twice Liz's age.

The sum of their ages is 58 years.

a Form an equation in y .

G3

$$y + (y+2) + 2(y+2) = 58$$

(oe) (B1)

b Solve the equation.

G2

$$\begin{aligned} y + y + 2 + 2y + 4 &= 58 \\ 4y + 6 &= 58 \quad (M1) \\ 4y &= 52 \end{aligned}$$

$$y = 13 \quad (A1)$$

c Find James' age.

G3

$$\begin{array}{ll} \text{BEN} & 13 \\ \text{LIZ} & 15 \\ \text{JAMES} & 30 \end{array} \quad (M1)$$

$$\begin{aligned} &= 30 \quad (A1) \end{aligned}$$

(5 marks)



10 Use a trial and improvement method to find the solution of $x^3 + 2x = 99$

that lies between $x = 4$ and $x = 5$

G4

Give your solution correct to 1 decimal place.

VALUE
BETWEEN

$$(4.5)^3 + 2(4.5) =$$

4.2	82.5
4.3	88.1
4.4	94.0
4.5	100.1
4.6	106.5
4.7	113.2

B1 FOR TRIAL $4 < x < 5$
 * B1 FOR DIFFERENT TRIAL (4.45) AND (4.5)
 A1 FOR CHOICE OF 4.5 DEPN.

(3 marks)

TOTAL = 38