1 Solve $3x = 2x$

Circle your answer.

[1 mark]

$x = -1$ $x = 0$ $x = \frac{2}{3}$ $x = \frac{3}{2}$

1

2 Solve $\frac{x+15}{3} = 2(x+10)$

[4 marks]

$\frac{x+15}{3} = 2x+20$ (1)

$x+15 = 3(2x+20)$

$x+15 = 6x+60$

$6x-x = 15-60$ (1)

$5x = -45$ (1)

$x = \frac{-45}{5}$

$= -9$ (1)

$x =$ -9

3 (a) The turning point of the curve $y = x^2 + 4x + b$ also has y-coordinate 8

Work out the value of b.

[2 marks]

$y = (x+2)^2 - 4 + b$ (1)

$-4 + b = 8$

$b = 12$ (1)

Answer 12

4 Here is an identity.

$$a(3x - 10) \equiv 21x + 2b$$

Work out the values of a and b.

[3 marks]

$a = 7$ (2)

$7(3x - 10) = 21x - 70$

$2b = -70$

$b = -35$ (1)

$a =$ 7 $b =$ -35

5 Solve $10x = 62.4 - 3x$

[2 marks]

$10x + 3x = 62.4$ (1)

$13x = 62.4$

$x = \frac{62.4}{13}$

$= 4.8$ (1)

$x =$ 4.8

6 Solve $\frac{2w}{15} = \frac{4}{5}$

[2 marks]

$2w = \frac{4}{5} \times 15$ (1)

$2w = 12$

$w = 6$ (1)

$w =$ 6

7 Solve $5(2x - 1) = 6x + 9$

[3 marks]

$10x - 5 = 6x + 9$ (1)

$10x - 6x = 9 + 5$ (1)

$4x = 14$

$x = \frac{14}{4} = 3.5$ (1)

$x =$ 3.5

8 $(a - 3)x^2 + 2b \equiv 5x^2 + 12$

Work out the values of a and b.

[2 marks]

$a - 3 = 5$ $2b = 12$

$a = 8$ $b = 6$

$a =$ 8 (1) $b =$ 6 (1)

9 Solve $5x + 11 = 3x + 19$

[2 marks]

$5x - 3x = 19 - 11$ (1)

$2x = 8$

$x = \frac{8}{2} = 4$ (1)

$x =$ 4

10 Solve $\frac{x+8}{2} + \frac{9-x}{5} = 4$

[4 marks]

$5(x+8) + 2(9-x) = 4(2)(5)$ (1)

$5x + 40 + 18 - 2x = 40$

$5x - 2x = 40 - 58$ (1)

$3x = -18$ (1)

$x = \frac{-18}{3} = -6$ (1)

$x =$ -6

11 Solve $7x - 22 = 4x + 29$

[3 marks]

$7x - 4x = 29 + 22$ ✓0

$3x = 51$ ✓0

$x = \frac{51}{3}$ ✓0

$= 17$ ✓0

$x =$ 17