Mark schemes

Q1.

(a) (x + a)(x + b)where $ab = \pm 24$

М1

$$(x + 8)(x - 3)$$
 either order

Α1

(b)
$$(x =) - 8$$
 and $(x =) 3$ *ft their part (a)*

B1 ft

[3]

Q2.

(a)
$$x + 7.5 \text{ or } 7.5 + x$$

 $x + 7.\frac{1}{2}$

В1

(b)
$$x(x + 7.5) = 2(x + x + 7.5)$$

ft theirx + 7.5 from (a) in the form $x + c$ for all 4 method marks

М1

$$x^2 + 7.5x = 4x + 15$$

М1

$$x2 + 3.5x - 15 = 0$$

or

$$2x2 + 7x - 30 = 0$$

М1

$$(2x - 5)(x + 6) (= 0)$$

M1

2.5 and 10

either order but in correct pairs

and

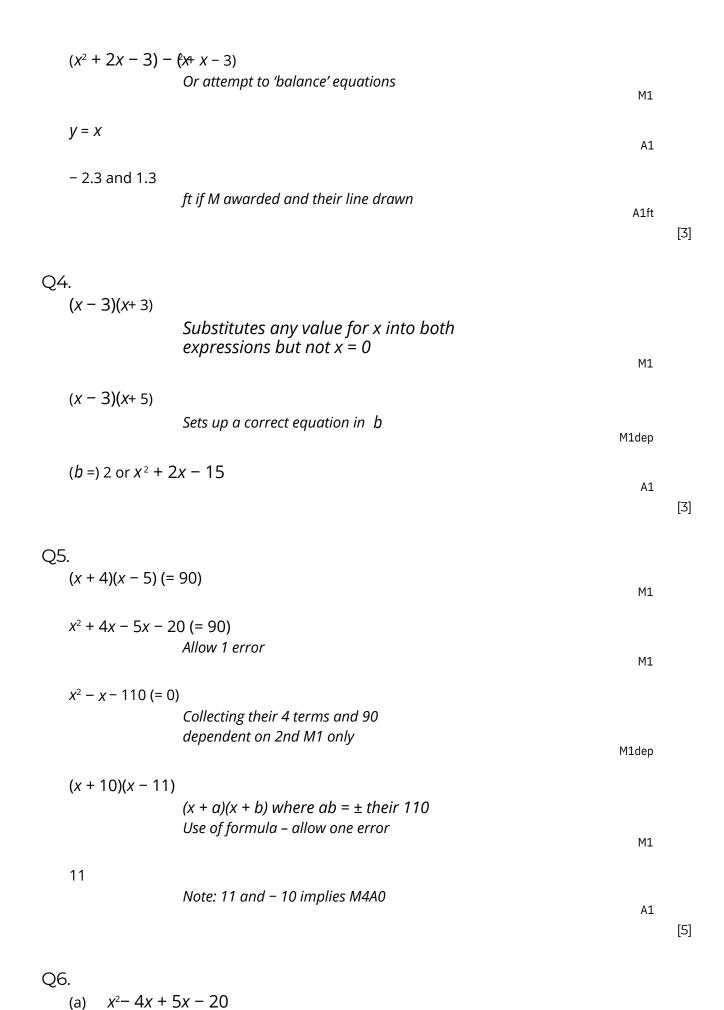
-6 and 1.5

SC1 one correct pair

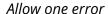
Α1

[6]

Q3.



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 $x^2 + x - 20$

Α1

М1

(b) 8 and -7

В1

[3]

Q7.

(a) (x-4)(x-5)

B1 for
$$(x - a)(x - b)$$
 whereab = 20 or $a + b = -9$

В2

(b) 4 and 5

ft their part (a) provided two brackets

B1ft

[3]

Q8.

$$(x + 2)(6x - 1) = 28$$

М1

$$6x^2 - x + 12x - 2 = 28$$

Allow one error

M1dep

$$6x^2 + 11x - 30 (= 0)$$

Collect terms to one side, ft their four terms

M1dep

$$(3x + 10)(2x - 3) (= 0)$$

Α1

$$(x = -\frac{10}{3} \text{ and}) x = 1.5$$

06

ft their two brackets

B1ft

$$2(6 \times 1.5 - 1 + 1.5 + 2)$$

or $14 \times 1.5 + 2$

$$2(6x - 1x + 2) + or 14x + 2$$

M1

23

(and
$$x = -\frac{10}{3}$$
 discarded)

May be implied

Bits

Q9.

(a) $30x3y7$

B1 for two correct terms

E2

Additional Guidance

Do not ignore fw for B2

 $30 \times x3 \times y7$

B1

 $30 \times x3y7$

B1

 $7x^2 \times 4y$

Do not allow addition sign,

eg $10x3 + 3y7$

B0

(b) $x^3 - 3x + 7x - 21$

Allow one error

 $x^2 + 4x - 21$

Additional Guidance

Do not ignore fw unless attempting to solve the equation

 $x^2 - 3x - 21$ or $x^2 + 7x - 21$ (one error)

 $x^2 - 4x - 21$ with no other working (two errors)

MAAO

 $x^2 - 4x - 21$ with no other working (two errors)

MAAO

(c) 8 and -2

or $x = 8$ and $x = -2$

[7]

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В2

[7]