

- 1 Show that $(x + 1)(x + 2)(x + 3)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are positive integers.

(Total for Question 1 is 3 marks)

2 (a) Factorise $a^2 - b^2$

.....
(1)

(b) Hence, or otherwise, simplify fully $(x^2 + 4)^2 - (x^2 - 2)^2$

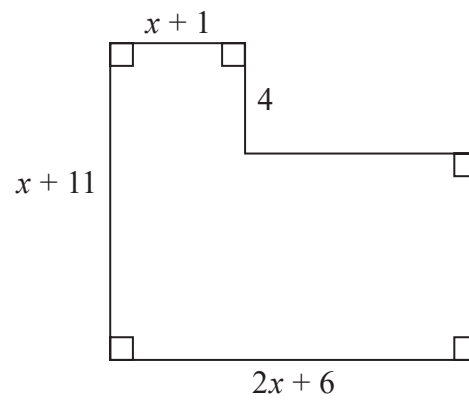
.....
(3)

(Total for Question 2 is 4 marks)

3 Expand and simplify $5(p + 3) - 2(1 - 2p)$

.....
(Total for Question 3 is 2 marks)

4 Here is a shape with all its measurements in centimetres.



The area of the shape is $A \text{ cm}^2$

Show that $A = 2x^2 + 24x + 46$

(Total for Question 4 is 3 marks)

5 Expand and simplify $(x - 2)(3x + 2)(2x + 3)$

.....
(Total for Question 5 is 3 marks)

6 Expand and simplify $(3x + 2)(2x + 1)(x - 5)$

(Total for Question 6 is 3 marks)

7 (a) Expand and simplify $(x + 5)(x - 9)$

.....
(2)

(b) Factorise fully $9x^2 + 6x$

.....
(2)

(Total for Question 7 is 4 marks)

8 Peter has to subtract $(x^2 - 2x - 4)$ from $(x^2 + 3x + 5)$

Here is his working

$$\begin{aligned}(x^2 + 3x + 5) - (x^2 - 2x - 4) \\ = x^2 + 3x + 5 - x^2 - 2x - 4 \\ = x + 1\end{aligned}$$

Explain what is wrong with Peter's working.

.....

.....

.....

(Total for Question 8 is 1 mark)

9 (a) Simplify $(x^3)^5$

.....
(1)

(b) Expand and simplify $4(x + 3) + 7(4 - 2x)$

.....
(2)

(c) Factorise fully $15x^3 + 3x^2y$

.....
(2)

(Total for Question 9 is 5 marks)

10 (a) Factorise fully $4p^2 - 36$

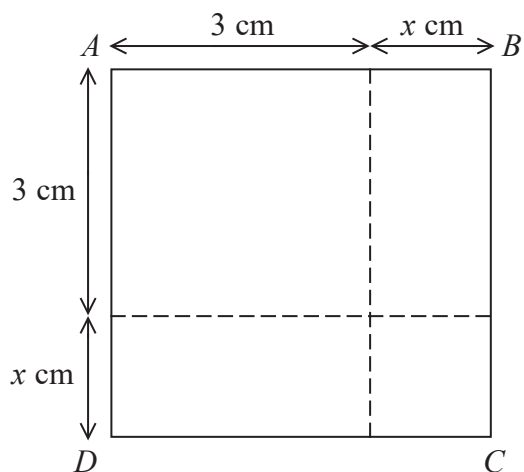
.....
(2)

(b) Show that $(m + 4)(2m - 5)(3m + 1)$ can be written in the form $am^3 + bm^2 + cm + d$ where a, b, c and d are integers.

(3)

(Total for Question 10 is 5 marks)

11



The area of square $ABCD$ is 10 cm^2 .

Show that $x^2 + 6x = 1$

(Total for Question 11 is 3 marks)