

## Question 1:

Simplify the following:

A.  $4c \times 4c^3$  (1 mark)

B.  $x^{\frac{1}{2}} \times 4x^{-\frac{1}{2}}$  (2 marks)

C.  $ax^2 \times a^3x$  (2 marks)

## Question 2:

$$g(x) = 5x^2 + 2$$

Calculate the following values:

A.  $g(2x)$  (2 marks)

B.  $g(x + 5)$  (3 marks)

C. Solve the equation  $g(x + 5) = 22$  for  $x$ . Giving your answer in surd form.  
(2 marks)

## Question 3:

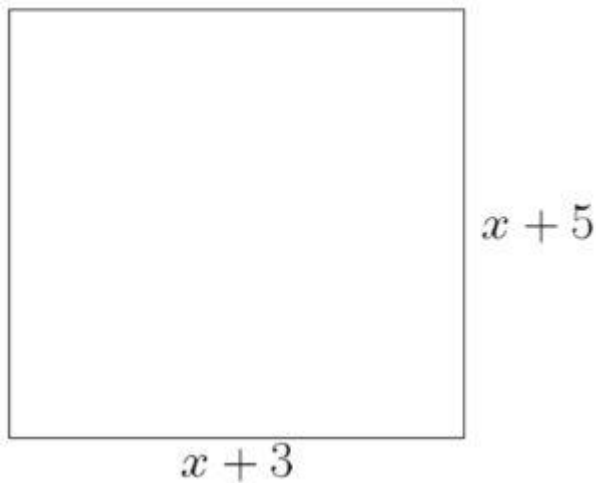
$$g(x) = (x + 6)(x - 1)$$

$$f(x) = 2x - 5$$

A. Calculate the value of  $g(f(x))$  (2 marks)

B. Solve the equation  $g(f(x)) = 0$  (2 marks)

## Question 4:



You are given a rectangle with length  $x + 3$  and  $x + 5$  respectively.

- A. Calculate the area of the rectangle in terms of  $x$  (2 marks)
- B. The side with length  $x + 3$  increases by 30%. Find the new area of the rectangle in terms of  $x$ . (3 marks)
- C. Using  $x = 4$ , calculate the new perimeter of the rectangle. (1 mark)

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## Question 5:

James reads 13 pages of his book every day, there are 20 words on each page. After 30 days, there are 25 words left.

- A. How many words are in the book? (2 marks)
- B. Write an expression for the number of words in a book when someone reads  $x$  pages per day, there are  $y$  words on every page, and after  $z$  weeks, there are only  $n$  words left. (2 marks)