16 Using $x_{n+1} = -2 - \frac{4}{x_n^2}$

with $x_0 = -2.5$

BP16A

(a) find the values of x_1, x_2 and x_3

$x_1 =$ .....

$x_2 =$ .....

$x_3 =$ .....

(3)

(b) Explain the relationship between the values of x_1, x_2 and x_3 and the equation $x^3 + 2x^2 + 4 = 0$

.....

.....

.....

.....

(2)

(Total for Question 16 is 5 marks)

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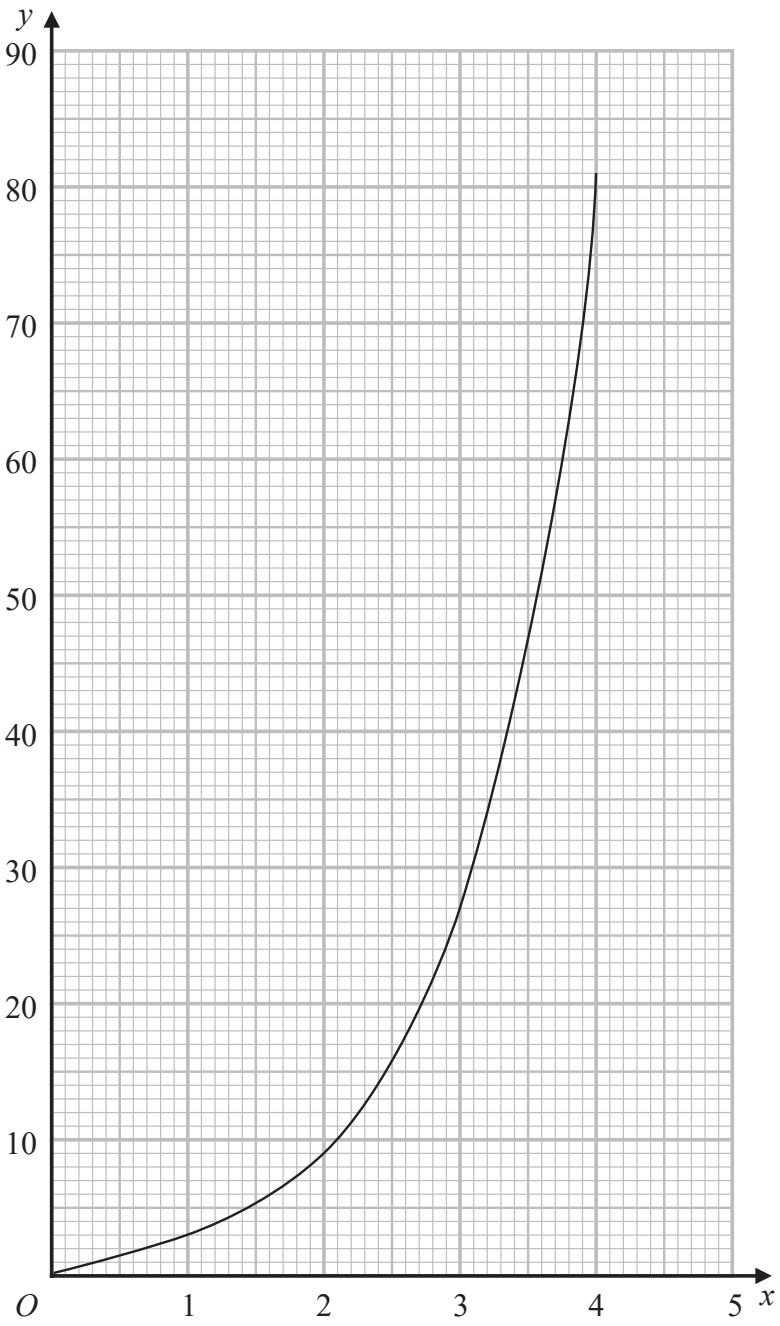
19 Sana needs to draw the graph of $y = 3^x$ for $0 \leqslant x \leqslant 4$

She draws the graph shown on the grid.



Write down one thing Sana has done wrong.

.....

.....

.....

(Total for Question 19 is 1 mark)

PM19A

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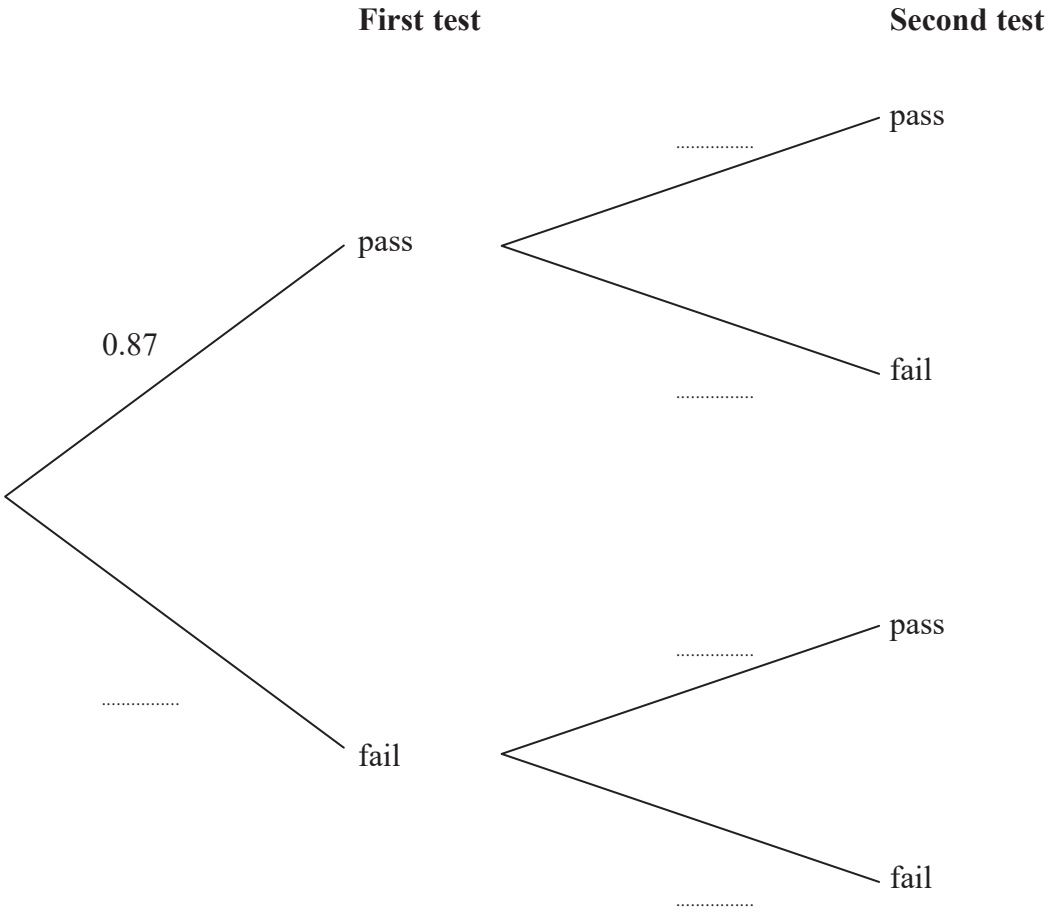
PP10A

10 Shakir has to complete two tests.
He can either pass or fail each test.

The probability that he will pass the first test is 0.87

If he passes the first test the probability he will pass the second test is 0.94
If he fails the first test the probability he will pass the second test is 0.73

(a) Complete the probability tree diagram for this information.



(2)

(b) Work out the probability that Shakir passes at least one of the tests.

.....

(3)

(Total for Question 10 is 5 marks)

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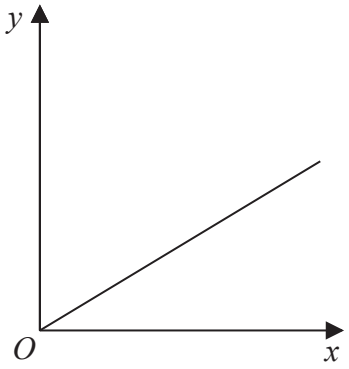
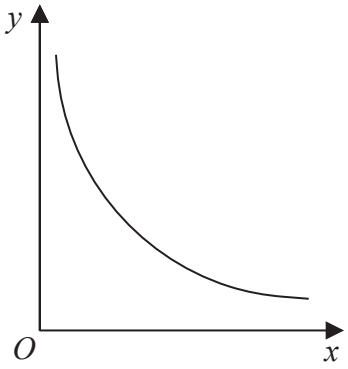
11

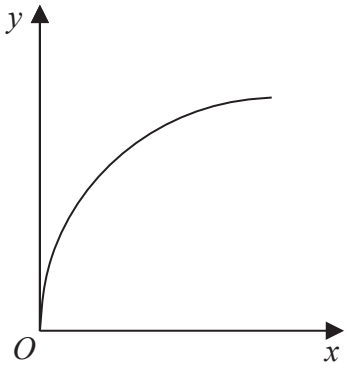
Graph **A**



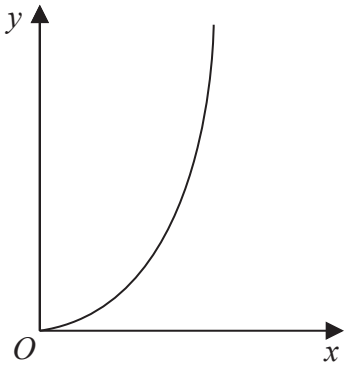
Graph **B**



Graph **C**



Graph **D**



PP11A

The graphs of y against x represent four different types of proportionality.

Match each type of proportionality in the table to the correct graph.

Type of proportionality	Graph
$y \propto x^2$	
$y \propto x$	
$y \propto \frac{1}{x}$	
$y \propto \sqrt{x}$	

(Total for Question 11 is 2 marks)

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11 f and g are functions such that

$$f(x) = \frac{2}{x^2} \qquad \text{and} \qquad g(x) = 4x^3$$

BI11A

(a) Find f(–5)

.....

(1)

(b) Find fg(1)

.....

(2)

(Total for Question 11 is 3 marks)

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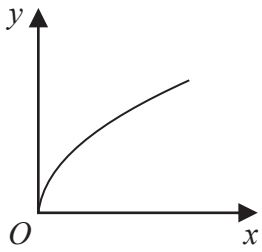
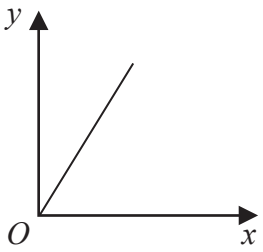
12

BI12A

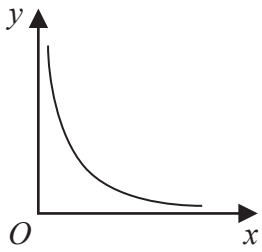
Graph A



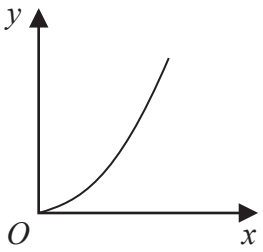
Graph B



Graph C



Graph D



The graphs of y against x represent four different types of proportionality.

Match each type of proportionality in the table to the correct graph.

Type of proportionality	Graph letter
$y \propto x$	
$y \propto x^2$	
$y \propto \sqrt{x}$	
$y \propto \frac{1}{x}$	

(Total for Question 12 is 2 marks)

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