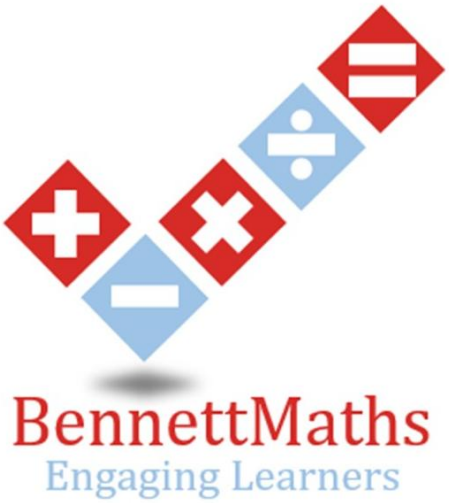

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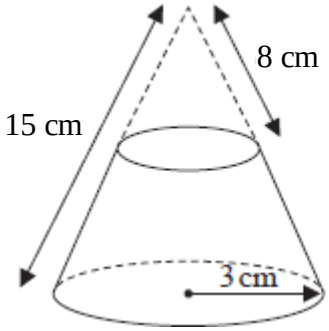
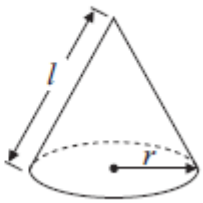
BennettMaths Edexcel 3H – Part 3

18 A solid frustum is made by removing a small cone from a large cone as shown in the diagram.



Curved surface area of cone = πrl



The slant height of the small cone is 8 cm.
The slant height of the large cone is 15 cm.
The radius of the base of the large cone is 3 cm.

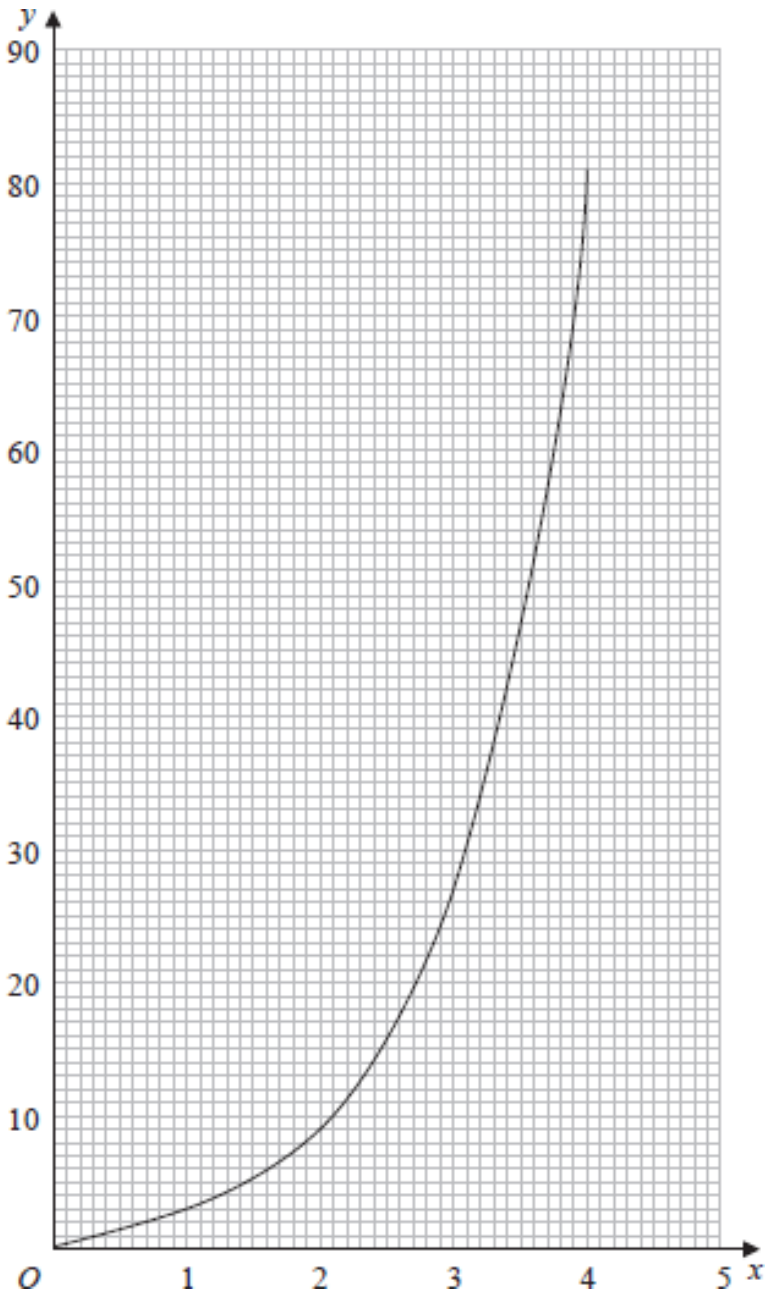
Calculate the total surface area of the frustum.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 18 is 5 marks)

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

She draws the graph shown on the grid.



Write down one thing Saira has done wrong.

.....

.....

.....

(Total for Question 19 is 1 mark)

20 Prove algebraically that $0.2\dot{5}\dot{6}$ can be written as $\frac{127}{495}$

(Total for Question 20 is 3 marks)

21 Solve $\frac{1}{x+5} + \frac{4}{2-2x} = 1$

.....

(Total for Question 21 is 4 marks)

22 Given that the vector $p\begin{pmatrix}3\\5\end{pmatrix} + q\begin{pmatrix}4\\8\end{pmatrix}$ is parallel to the vector $\begin{pmatrix}26\\50\end{pmatrix}$

find an expression for q in terms of p.

.....

(Total for Question 22 is 3 marks)

23 A circle has equation $x^2 + y^2 = 100$

The point P with coordinates $(8, -6)$ lies on the circle.

Ayesha says that the tangent to the circle at P crosses the x-axis at the point $(13, 0)$

Is Ayesha correct?
You must show how you get your answer.

(Total for Question 23 is 4 marks)

24 There is a total of y sweets in a packet.

There are x green sweets and 6 orange sweets in the packet.
The rest of the sweets are yellow.

$$x : y = 1 : 4$$

Hannah takes at random two sweets from the packet.

Find, in terms of x, an expression for the probability that Hannah takes two sweets of the same colour.

Give your answer as a fraction in the form $\frac{ax^2 + bx + c}{dx^2 + ex}$ where a, b, c, d and e are integers.

.....

(Total for Question 24 is 5 marks)

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