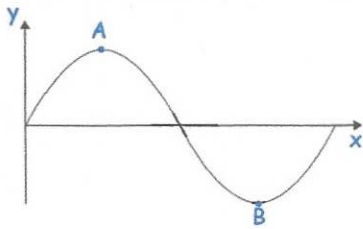


20th January



Corbettm0ths



Shown is the curve
 $y = \frac{1}{4}\sin x$

Write down the coordinates of A and B

$A = (90, \frac{1}{4})$

$B = (270, -\frac{1}{4})$

The point (12, 5) lies on a circle with centre (0, 0)

$r = 13$

Write down the coordinates of another three points on the circle.

$(5, 12)$ $(5, -12)$

$(12, -5)$

$(0, 13)$ $(-13, 0)$
etc.

Expand and simplify

$(x-3)^3$ $(x-3)(x-3)(x-3)$
 $(x^2 - 6x + 9)(x-3)$
 $x^3 - 3x^2 - 6x^2 + 18x + 9x - 27$

$x^3 - 9x^2 + 27x - 27$

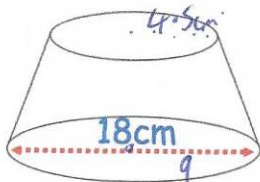
There are 20 sweets in a box.
There are y chocolate sweets and the rest of the sweets are mints.

$20 - y$

Florence takes out two sweets, at random, from the box.

Find an expression, in terms of y , for the probability that Florence takes two chocolate sweets.

$\frac{y}{20} \times \frac{y-1}{19} = \frac{y^2 - y}{380}$



20cm



$\pi \times 18 = 56.548\dots$

$\frac{2}{360} \times \pi \times 82 = 56.548\dots$

$\theta = 79.02439^\circ$

Calculate the surface area of the frustum

Curved surface area = $\frac{79.02^\circ}{360} \times \pi \times 41^2 - \frac{79.02^\circ}{360} \times \pi \times 20.5^2$

$= 869.435\dots \text{cm}^2$

top: $\pi \times 4.5^2 = 63.617\dots \text{cm}^2$

bottom: $\pi \times 9^2 = 254.469\dots \text{cm}^2$

Total surface area = 1187.522cm^2

