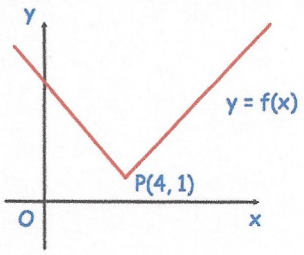
Name: _____ 5-a-day Higher Plus

23rd October

Corbettmaths



What are the coordinates of the new position of P when the graph y = f(x) is transformed to the graph of y = f(x+3)?

(1, 1)

Prove $(n + 10)^2 - (n + 5)^2$ is always a multiple of 5

$n^2 + 20n + 100$

$-(n^2 + 10n + 25)$

$= 10n + 75$

$5(2n + 15)$

$\therefore$ multiple of 5

The graph of $y = c + d^x$ passes through the points (1, 7) and (3, 127).

~~a~~ c > 0 and ~~b~~ d > 0

Find the values of ~~a~~ c and ~~b~~ d

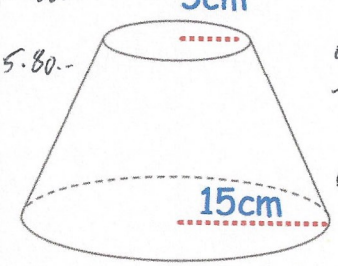
$7 = c + d$

$127 = c + d^3$

$c = 2 \quad d = 5$

$15^2 + 21^2 = 666$

$\sqrt{666} = 25.80...$



Curved surface

entire

$\pi \times 15 \times \sqrt{666}$

1216.125...

removed $\frac{1}{9} \times (1216.125...)$

$= 135.125...$

left: 1081

A frustum is made is cutting a small cone from the top of a larger cone, that was 21cm tall.

$\pi \times 5^2 = 25\pi$

$\pi \times 15^2 = 225\pi$

Calculate the surface area of the frustum

$25\pi + 225\pi + 1081$

1866.4 cm^2

A group of students want to estimate how many woodlice live in a greenhouse.
They catch and mark 20 woodlice.
They return the 20 woodlice to the greenhouse.
They then catch 50 woodlice and 11 are marked

$\frac{20}{n} = \frac{11}{50}$

Estimate the number of woodlice in the greenhouse.

90 or 91