Name: _____ 5-a-day Higher Plus

4th April

Corbettmaths

a is inversely proportional to the cube root of b.

When a = 60, b = 3.375

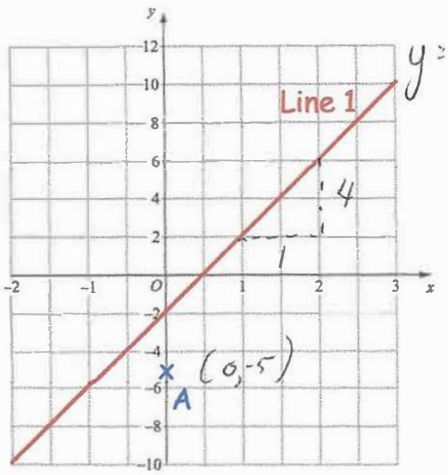
Find b when a = 90

$a \propto \frac{1}{\sqrt[3]{b}}$ $a = \frac{k}{\sqrt[3]{b}}$

$60 = \frac{k}{1.5}$ $a = 90$

$k = 90$ $\sqrt[3]{b} = 1$

$a = \frac{90}{\sqrt[3]{b}}$ $b = 1$



$y = 4x - 2$

$y = -\frac{1}{4}x + c$

$y = -\frac{1}{4}x - 5$

Find the equation of the line perpendicular to Line 1, that passes through the point A

$y = -\frac{1}{4}x - 5$

Find the shortest distance between Line 1 and the point A

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

$4.25x = -3$

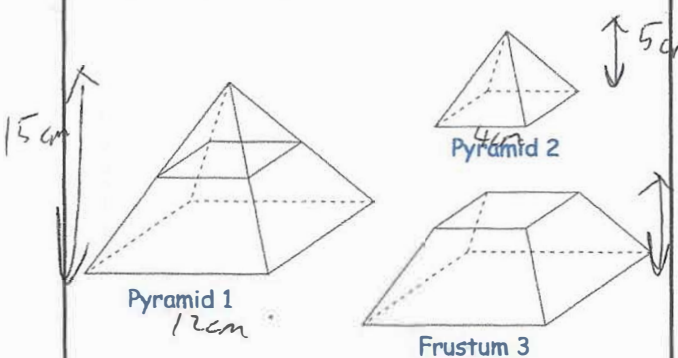
$x = -\frac{12}{17}$

$y = -\frac{82}{17}$

$\sqrt{\left(-\frac{12}{17} - 0\right)^2 + \left(-\frac{82}{17} - -5\right)^2}$

$= \frac{3}{17}\sqrt{17}$ (0.7276)

A square based pyramid 1 is divided into two parts: a square based pyramid 2 and a frustum 3, as shown.



Pyramid 1 has a base of side length 12cm.
Pyramid 2 has a base of side length 4cm.
The perpendicular height of pyramid 1 is 15cm.

Calculate the volume of frustum 3.

P1 : $\frac{1}{3}(12)^2 \times 15 = 720 \text{ cm}^3$

P2 : $\frac{1}{3}(4)^2 \times 5 = 26.\dot{6} \text{ cm}^3$

$720 - 26.\dot{6} =$

$693.\dot{3} \text{ cm}^3$