

23rd April



Corbettmaths

A curve has gradient function

$$\frac{dy}{dx} = 17 - x^3$$

Work out the gradient of the curve when $x = -2$

$$17 - (-2)^3$$

$$17 - (-8) = 25$$

 $f(x) = 2500 - x^3$ for all values of x .Solve $f(3x) = 2$

$$f(3x) = 2500 - 27x^3$$

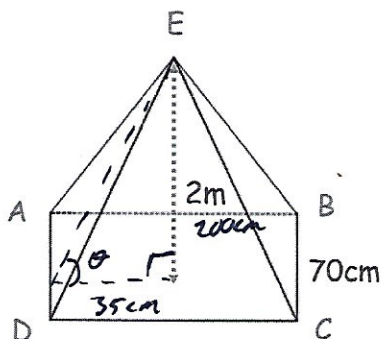
$$2 = 2500 - 27x^3$$

$$27x^3 + 2 = 2500$$

$$27x^3 = 2498$$

$$x^3 = \frac{2498}{27}$$

$$x = 4.523$$



ABCDE is a square based pyramid. Work out the angle between planes ABCD and ADE.

$$\tan \theta = \frac{200}{35} \quad \theta = 80.07^\circ$$

The transformation matrix $\begin{pmatrix} 3a & 4b \\ b & a \end{pmatrix}$ maps the point $(1, -2)$ onto the point $(-2, -1)$ Find the values of a and b

$$\begin{pmatrix} 3a & 4b \\ b & a \end{pmatrix} \begin{pmatrix} 1 \\ -2 \end{pmatrix} = \begin{pmatrix} -2 \\ -1 \end{pmatrix}$$

$$3a - 8b = -2$$

$$b - 2a = -1$$

$$8b - 16a = -8$$

$$3a - 8b = -2$$

$$-13a = -10$$

$$a = \frac{10}{13}$$

$$b - \frac{20}{13} = -1$$

$$b = \frac{7}{13}$$