



Estimate

$$50^{-\frac{3}{2}} = \frac{1}{50^{\frac{3}{2}}} \approx \frac{1}{343}$$

The first 5 terms of a quadratic sequence are: 4, 10, 18, 28, 40

Work out the difference between the 10th and 20th terms.

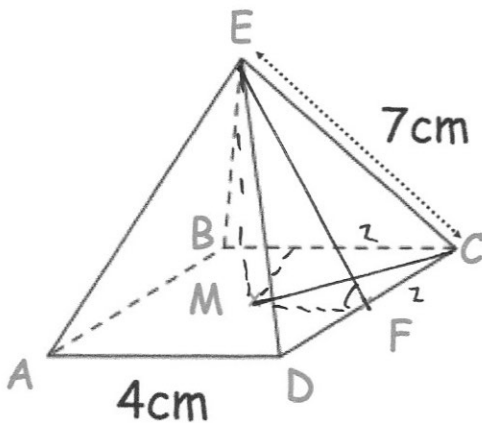
$$330$$

$$\begin{aligned} a &= 1 \\ b &= 3 \quad n^2 + 3n \\ c &= 0 \end{aligned}$$

$$10^{\text{th}} \text{ term} = 130$$

$$20^{\text{th}} \text{ term} = 460$$

$$460 - 130 = 330$$



Shown is the square based pyramid ABCDE.

F is the midpoint of CD.

M is the point on the base directly below the vertex E.

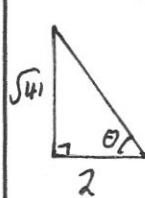
Work out the length of EM

$$\begin{aligned} CM^2 &= 2^2 + 2^2 \\ CM^2 &= 8 \quad CM = \sqrt{8} \end{aligned}$$

$$EM^2 = 7^2 - (\sqrt{8})^2 = 41$$

$$EM = \sqrt{41} \text{ cm}$$

Work out the angle between the line EF and plane ABCD



$$\tan \theta = \frac{\sqrt{41}}{2}$$

$$\theta = 72.65^\circ$$

Find where the tangent to the circle $x^2 + y^2 = 160$ at the point (4, -12) meets the x-axis.

$$\text{gradient of radius} = -3$$

$$\text{gradient of tangent} = \frac{1}{3}$$

$$y = \frac{1}{3}x + c$$

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$$-12 = \frac{4}{3} + c \quad c = -\frac{40}{3}$$

$$y = \frac{1}{3}x - \frac{40}{3}$$

$$0 = \frac{1}{3}x - \frac{40}{3} \quad x = 40$$

$$(40, 0)$$