Name: _____ 5-a-day Higher Plus

10th December

Corbettmaths

HJK is a straight line where HJ:JK = 2:3

The coordinates of H are (–4, 8) and the coordinates of J are (5, –1)

$\vec{HJ} = \begin{pmatrix} 9 \\ -9 \end{pmatrix}$ $\vec{JK} = \begin{pmatrix} 13.5 \\ -13.5 \end{pmatrix}$

Work out the coordinates of the point K

$(18.5, -14.5)$

Prove that

$(2n + 1)^2 - (2n - 1)$

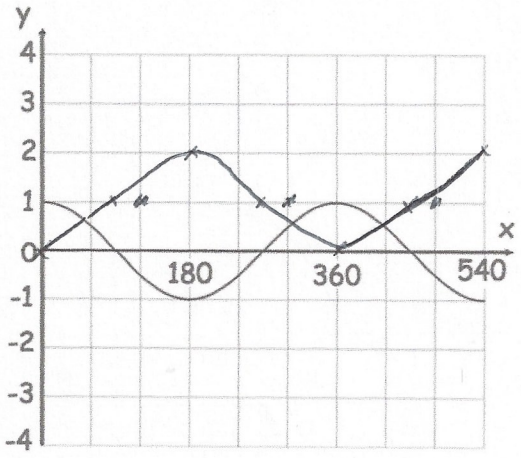
is an even number for all positive integer values of n.

$4n^2 + 2n + 2n + 1 - (2n - 1)$

$4n^2 + 4n + 1 - (2n - 1)$

$4n^2 + 2n + 2$

$2(2n^2 + n + 1)$ ∴ positive



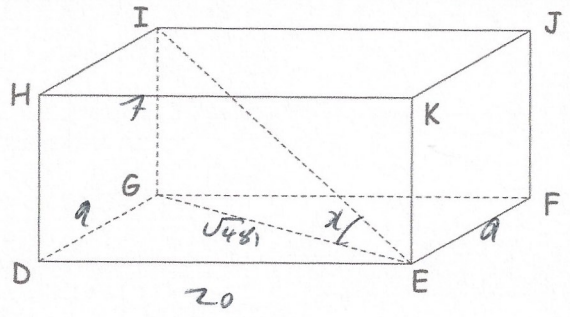
Shown is the graph of y = cos(x)

Write down the exact value of cos(135)

$-\frac{\sqrt{2}}{2}$

On the same graph draw

y = 1 – cos(x)



DE = 20cm EF = 9cm GI = 7cm

Calculate angle GEI

$GE^2 = 9^2 + 20^2$ $GE = \sqrt{481}$

$\tan GEI = \frac{7}{\sqrt{481}}$

$GEI = 17.7°$