Name: _____ 5-a-day Higher Plus

**26th December**

Corbettmaths

$2x^2 - 6x + 1$ can be written in the form $a(x - b)^2 + c$

Find a, b and c

$2(x^2 - 3x) + 1$

$2\left[(x - \frac{3}{2})^2 - \frac{9}{4}\right] + 1$

$2(x - \frac{3}{2})^2 - \frac{18}{4} + 1$

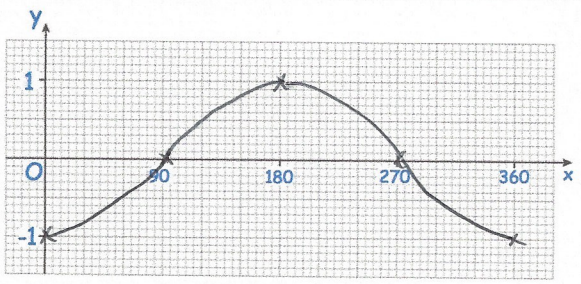
$2(x - \frac{3}{2})^2 - \frac{7}{2}$

Simplify $5\sqrt{8} + \sqrt{18}$

$5(\sqrt{4} \times \sqrt{2}) + (\sqrt{9} \times \sqrt{2})$

$10\sqrt{2} + 3\sqrt{2}$

$13\sqrt{2}$




Sketch the graph of $y = -\cos x$ for $0 \leq x \leq 360$.

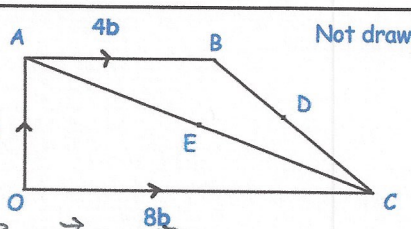
$\overrightarrow{OA} = 2\underline{a}$ $\overrightarrow{AB} = 4\underline{b}$ and $\overrightarrow{OC} = 8\underline{b}$

Point D is the midpoint of BC. $\overrightarrow{AC} = -2\underline{a} + 8\underline{b}$

Point E is the midpoint of AC. $\overrightarrow{AE} = -\underline{a} + 4\underline{b}$

Show $\overrightarrow{ED}$ and $\overrightarrow{OC}$ are parallel

$\overrightarrow{BC} = -2\underline{a} + 4\underline{b}$ $\overrightarrow{BO} = -\underline{a} + 2\underline{b}$




Not drawn accurately

$\overrightarrow{ED} = \overrightarrow{EC} + \overrightarrow{CD}$

$= -\underline{a} + 4\underline{b} + \underline{a} - 2\underline{b} = 2\underline{b}$

$\overrightarrow{OC} = 4\overrightarrow{ED}$ ∴ parallel

A circle has equation $x^2 + y^2 = 50$ $r = \sqrt{50}$

The point A has coordinates (1, 7)

The line l is the tangent to the circle at the point A.

The line l crosses the x-axis at the point P.

Work out the area of triangle OAP.

l $y = -\frac{1}{7}x + \frac{50}{7}$

P(50, 0)

O(0, 0)

A(1, 7)

$\frac{1}{2} \times 50 \times 7$

$= 175$