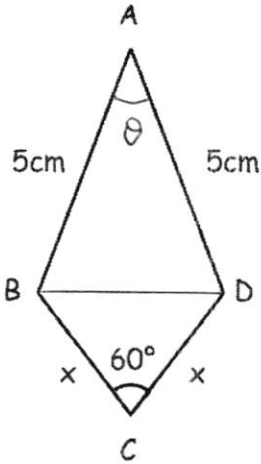


9th July	
$y = \frac{x^{10}}{2} + \frac{x^9}{3}$ <p>Work out $\frac{dy}{dx}$</p>	<p>Simplify your answer</p> $\frac{dy}{dx} = 5x^9 + 3x^8$
<p>Solve $\cos^2 x = \frac{1}{9}$ for</p> $0^\circ \leq x \leq 360^\circ$	$\cos x = \pm \frac{1}{3}$ $x = 70.5^\circ, 109.5^\circ,$ $250.5^\circ, 289.5^\circ$
<p>Shown below is a kite, ABCD.</p> 	<p>Prove $\cos BAD = 1 - \frac{x^2}{50}$</p> <p>In $\triangle ABD$,</p> $BD^2 = 5^2 + 5^2 - 2 \times 5 \times 5 \times \cos \theta$ $BD^2 = 50 - 50 \cos \theta$ <p>In $\triangle CBD$,</p> $BD^2 = x^2 + x^2 - 2x^2 \cos 60^\circ$ $BD^2 = x^2$ $x^2 = 50 - 50 \cos \theta$ $50 \cos \theta = 50 - x^2$ $\cos \theta = 1 - \frac{x^2}{50}$
<p>Solve</p> $\sqrt{x} - \frac{24}{\sqrt{x}} = 5$ <p>where x is positive</p>	$t = \sqrt{x} \quad t - \frac{24}{t} = 5$ $t^2 - 5t - 24 = 0$ $(t - 8)(t + 3) = 0$ $t = 8 \text{ or } -3 \text{ (rejected)}$ $\sqrt{x} = 8$ $x = 64$