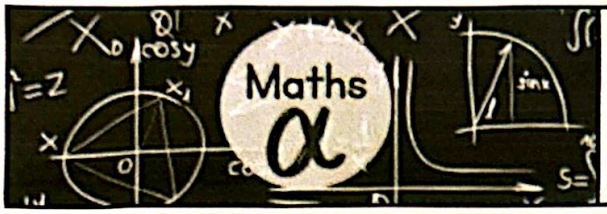


GCSE – Year 10

Weekly Tutorial 13

1. Expand and simplify; $(2x-3)(2-x)(x+3)$

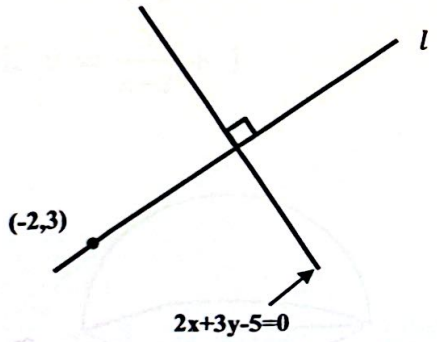
2. Rationalize the denominator; $\dfrac{\sqrt{27}+3}{\sqrt{48}-3}$

3. Solve by using quadratic formula and give the answer in exact form.

$$x=\sqrt{\frac{5x+4}{2}}$$

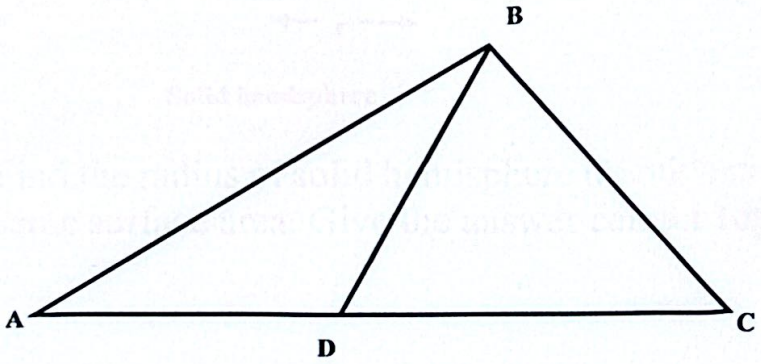
4. Sketch the graph of $y=-3x^2+9x+1$. Show the coordinates of the turning points, roots and y-intercepts.

5.



Find the equation of line l.

6.



$AD = 5cm$
$DC = 18cm$
$AB = 17cm$
$B\hat{A}D = 23^o$
$A\hat{D}B = 135^o$

Find the length BC and give the answer correct to 2 dp.

7. Find the coordinates at the Centre and the radius of the circle.
$x^2+y^2-12x+6y-2=0$

8. Make x the subject of the formula, $y=2\pi\left(\frac{l-x}{x}\right)$

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9. Solve and give your solutions correct to 1dp.

$$y = 2x^2 + 3x + 1$$
$$y = 3 - 2x$$

10. Solve.

a) $-3 \leq \frac{2x+1}{2} \leq 5$

b) $6x^2 + 5x - 6 \geq 0$

11.

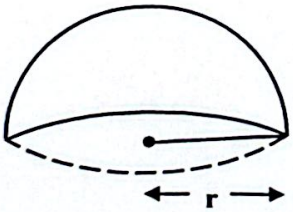
a) Sketch the graph of $y = \frac{3}{x}$

b) Hence sketch

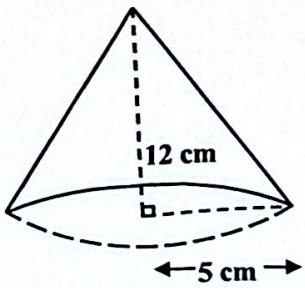
i. $y = \frac{3}{x-2}$

ii. $y = \frac{3}{x-2} + 1$

12.



Solid hemisphere



Open cone

Find the radius of solid hemisphere if both hemisphere and open cone have same surface area. Give the answer correct 1dp.