

Year 09 Weekly Tutorial - 03

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1. Factorize.

a) $3x^2 - 27$

b) $3x^2 - 13x + 10$

2. Expand and simplify. $(3\sqrt{5} - 2)(\sqrt{3} + 5)$

3. Rationalize the denominator.

a) $\frac{3}{(\sqrt{3}-1)(\sqrt{3}+2)}$

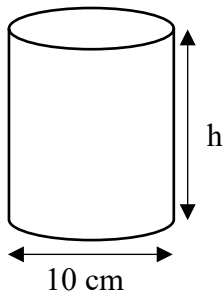
b) $\frac{1}{(\sqrt{2}+1)^2}$

4. Simplify.

a) $\frac{27x^3y}{9xy^3}$

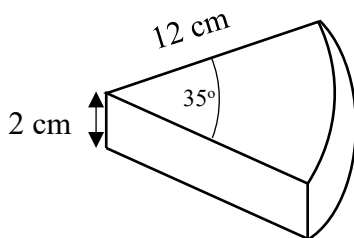
b) $\left(\frac{4x^2}{9y^6}\right)^{-\frac{3}{2}}$

5.



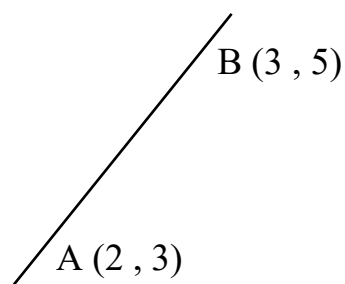
The total surface area of the solid cylinder is 850 cm^2 . Find the volume of the cylinder. (Give the answer correct to 1dp)

6.



Find the volume.

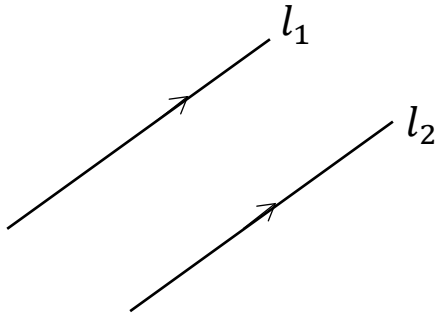
7.



a) Find the coordinates at the midpoint of line AB.

b) Find the length of line segment AB.

8.



Line l_1 passes through a point $(2, -3)$.
Line l_2 has equation $3x - 4y + 2 = 0$.
Find the equation of line l_1 in the form of
 $ax + by + c = 0$.

Where a, b and c are integers.

9. Make x the subject of the formula. $y = \frac{3(5x+6)}{2x-7}$

10. Solve. $x + 3 : 2x - 5 = 2 : 3$

11. It is predicted that property prices will increase at same rate each year for the next two years at a rate of 2.3% annum.
If your property is £ 370,000, how much it would be valued at after 2 years?