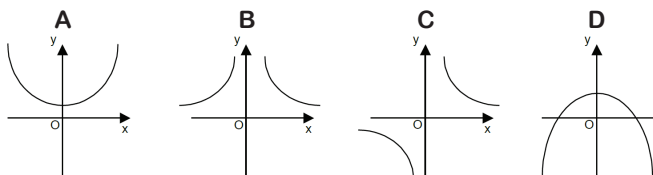


1) Solve: $\frac{2x+1}{x-1} = \frac{7x+3}{4x-3}$

$x = 0 \quad x = -2$

2) Below are sketch graphs, A, B, C and D.



Identify, using A, B, C or D, the sketch graph which represents each of these equations.

$y = 3 - x^2$ **D**

$y = \frac{3}{x}$ **C**

3) Solve algebraically these simultaneous equations. Show your method clearly.

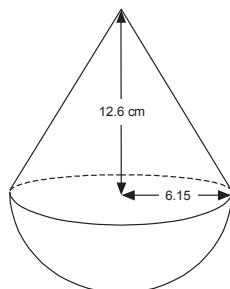
$x + y = 5$

$x^2 + 3y^2 = 49$

$x = 6.5 \quad y = -1.5$

$x = 1 \quad y = 4$

4) The radius of the base of the cone is 6.15 cm and the height of the cone above the centre of its base is 12.6 cm. Find the volume of the shape.



986 cm^3

5) Simplify $\frac{5-\sqrt{2}}{3+\sqrt{3}}$

$= \frac{15 - 3\sqrt{2} - 5\sqrt{3} + \sqrt{6}}{6}$

6) Fred has a box of n chocolates. It contains 6 milk chocolates and the rest are dark chocolates. Fred takes one, eats it and then takes another. The probability that Fred takes two dark chocolates is $\frac{1}{12}$. Find the probability of Fred taking two milk chocolates.

$P(2\text{dark}) = \frac{n-6}{n} \times \frac{n-7}{n-1}$
 $= \frac{n^2 - 13n + 42}{n^2 - 2} = \frac{1}{12}$

$12n^2 - 156n + 504 = n^2 - n$
 $11n^2 - 155n + 504 = 0$

$n = 9, \frac{56}{11}$
 $n = 9$

$P(2\text{milk}) = \frac{6}{9} \times \frac{5}{8} = \frac{5}{12}$

7) The circle $x^2 + y^2 = 7$ has a tangent at the point $(q, -2)$ where $q < 0$. Find the equation of the tangent at this point.

$2y = \sqrt{3}x - 1$

8) Find the values of x that satisfy:

a) $x^2 + 3x - 10 \leq 0$

$-5 \leq x \leq 2$

b) $x^2 - x - 56 \geq 0$

$x \leq -7 \text{ or } x \geq 8$

9) The base of a right pyramid is a rectangle measuring 18 cm by 10 cm. The pyramid has vertical height 12 cm. Calculate the total surface area of the pyramid.

564 cm^2