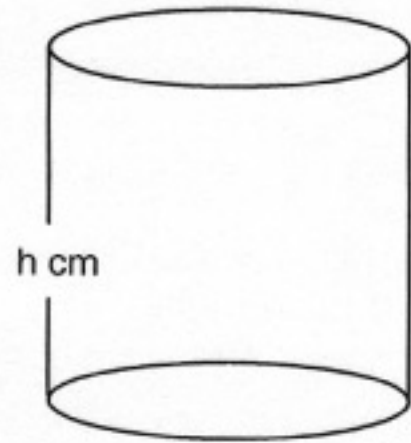


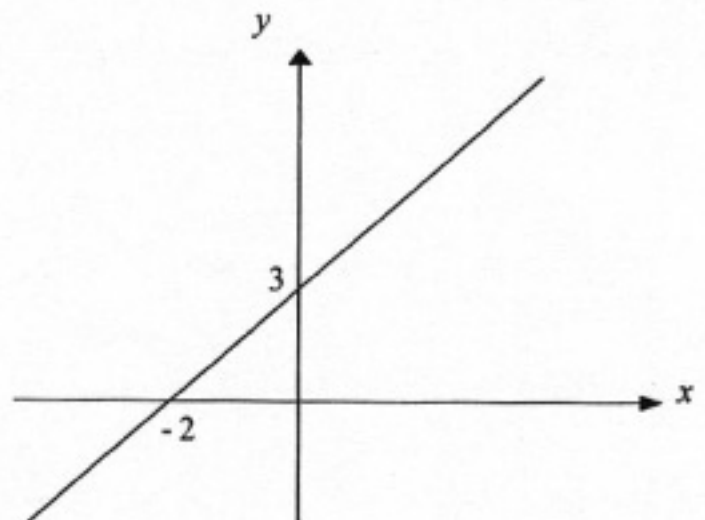
6 a) Rearrange $A = 2\pi r(r + h)$ to make h the subject.



b) The surface area of the cylinder is 196 cm^2 . Find its height if the base's radius is 4 cm .

7 Point P has coordinates $(5, 6)$ and point Q has coordinates $(1, -1)$. Find the length of PQ, giving your answer to two decimal places.

8 The diagram shows a straight-line on a graph. Write down its equation.



9 Bag A contains three red and two green balls. Bag B contains five red and three green balls. A ball is randomly selected from each bag.

a) What is the probability that both balls are red?

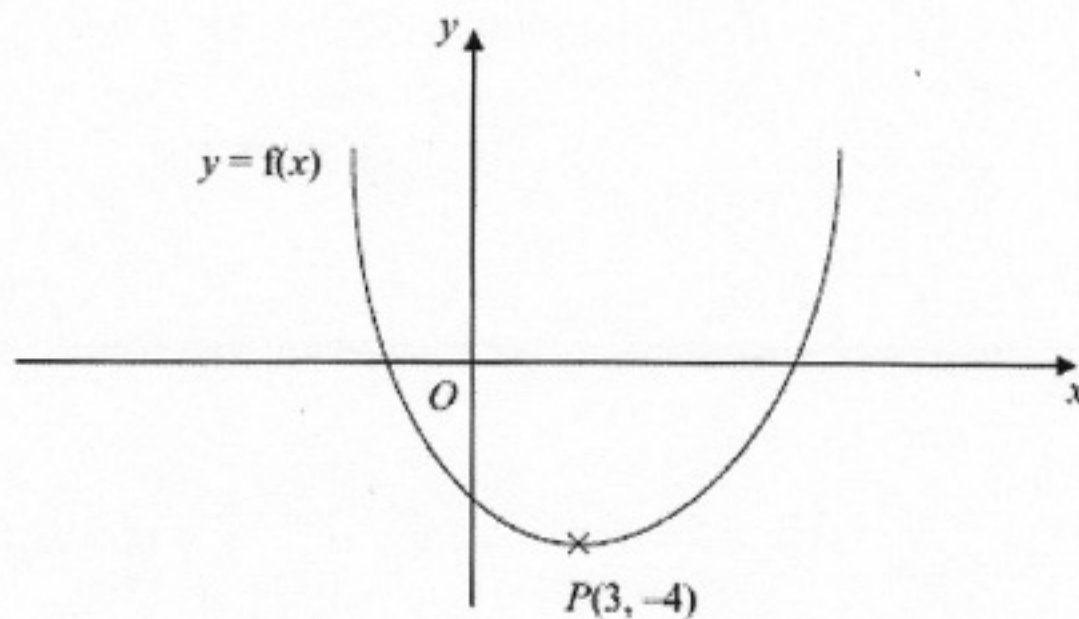
b) What is the probability that the balls are different colours?

c) A single ball is drawn from a randomly picked bag. What is the probability it is red?

14. Prove that the recurring decimal $0.\dot{3}\dot{6} = \frac{4}{11}$

(Total 3 marks)

15. This is a sketch of the curve with the equation $y = f(x)$.
The only minimum point of the curve is at $P(3, -4)$.



- (a) Write down the coordinates of the minimum point of the curve with the equation

$$y = f(x - 2).$$

(.....,)

(2)

- (b) Write down the coordinates of the minimum point of the curve with the equation

$$y = f(x + 5) + 6$$

(.....,)

(2)

(Total 4 marks)

END OF EXAMINATION

Question 9

The points A , B and C have coordinates $(-2, 2)$, $(0, 10)$ and $(12, k)$ respectively, where k is a constant.

(a) Calculate AB^2 .

Given that $BC^2 = 153$,

(b) find the possible values of k .

Given that $k = 7$,

(c) prove that $\angle ABC = 90^\circ$.

(d) calculate the area of ΔABC ,

(e) calculate the length, to one decimal place, of the perpendicular from B to AC .

[12]

Question 10

Find all the values of θ in the interval $0 \leq \theta < 360$ for which

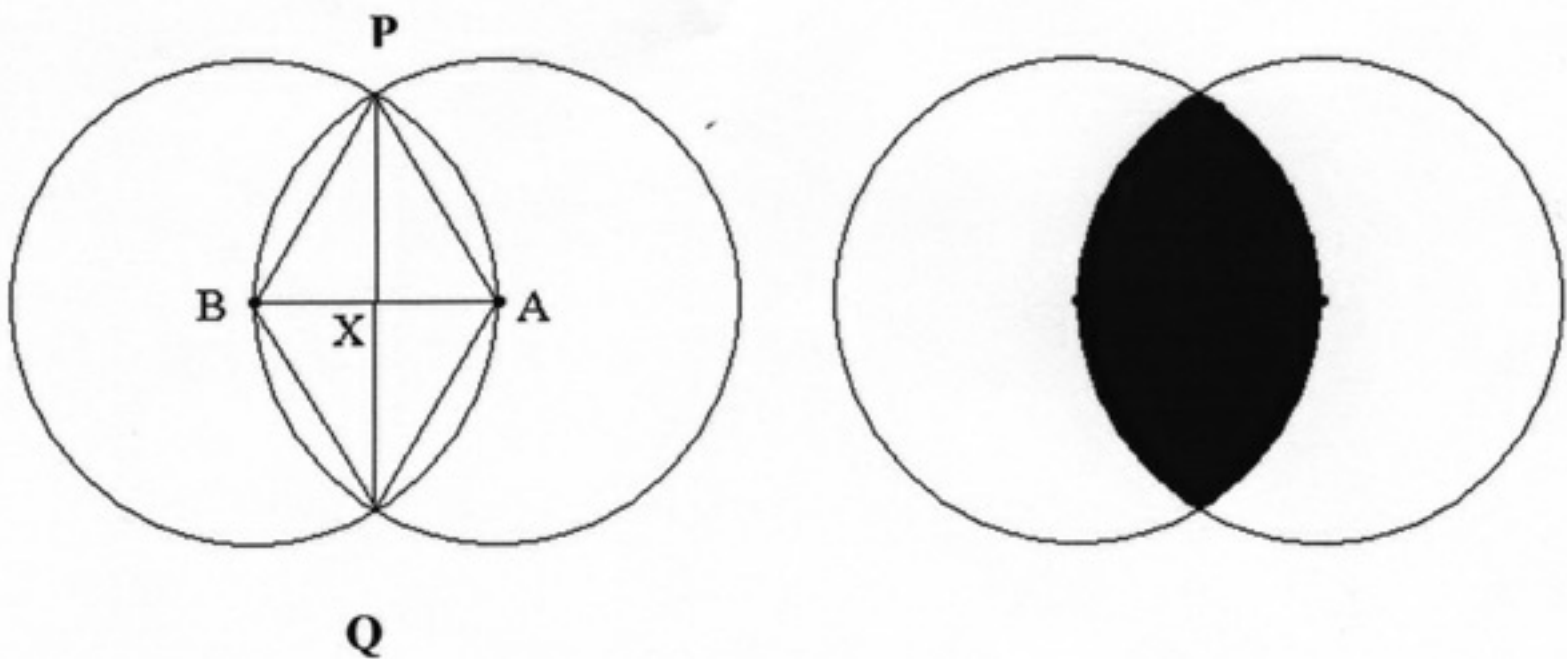
(a) $\cos(\theta + 75)^\circ = 0.5$,

(b) $\sin 2\theta = 0.7$, giving your answers to one decimal place.

[8]

Total = 80

- 20 The first diagram shows two circles each of radius 5 centimetres, one centred at A and the other at B.



- a) State the size of angles PAB and PAQ.

- b) Calculate the distance PX giving your answer correct to 3 sig. figs.

- c) Calculate the area of the triangle PAB giving your answer correct to 3 sig. figs.

- d) Calculate the area of the sector PAB

- e) Hence calculate the area shaded in the second diagram.

