

S4 Homework – Week 24

Q1. Calculate the area of a sector with a radius of 30 centimetres and angle at the centre of  $60^\circ$  ( $\pi = 3.14$ ).

Q2. Determine the nature of the roots of :

a.  $y = x^2 + 5x - 3$

b.  $y = 2x^2 + x + 5$

c.  $y = 4x^2 + 4x + 1$

Q3. Find the median and semi-interquartile range for the following:

25, 13, 15, 31, 42, 26, 24, 31, 38, 61

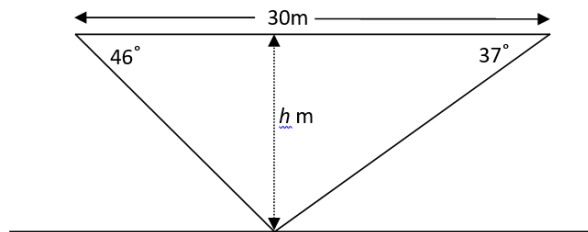
Q4. Two Sunday league football teams were tracking their goal scored this season.

Team A has a mean of 3.2 goals and a standard deviation of 1.86. Team B has a mean of 2.9 goals and a standard deviation of 0.55.

Make two comparison statements about Team A and Team B's goals scored this season.

Q5. Two security cameras are positioned on a beam in a warehouse 30 metres apart. One camera has an angle of depression of  $37^\circ$  and the other camera has an angle of depression of  $46^\circ$ .

Calculate the height,  $h$  metres, of the beam above the ground.



Q6. A spacecraft is traveling to Mars, be  $4.45 \times 10^7$  km away from earth. It has been estimated to take 926 hours and 45 minutes for the spacecraft to arrive. Calculate the speed of the spacecraft in km/hr.

Q7. Solve the quadratic equation :

$$2x^2 - 5x - 10 = 0$$

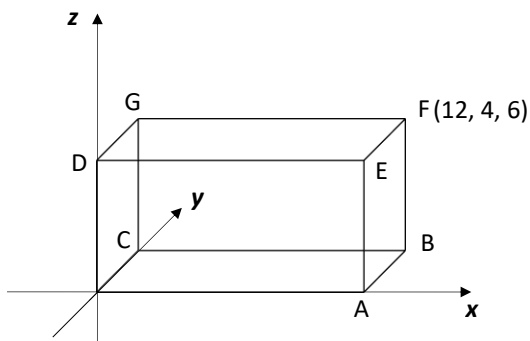
Giving the roots correct to 2 significant figures.

Q8. Solve the following:

a.  $2(2k - 1) - 8 > 10(1 + k)$

b.  $3(2 - y) > 2(1 + 3y) - 7$

Q9. Find the co-ordinates of i. B    ii. G    iii. D



Q10. Find the gradient and y-intercept of the following straight lines:

a.  $6y = 8x - 4$

b.  $7x - 2y + 9 = 0$