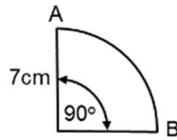


Arc Lengths and Sector Areas

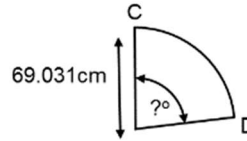
lengths of arcs (i)

(1)



what is the length of arc AB ?

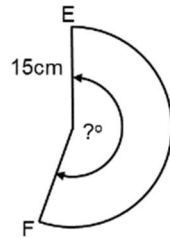
(2)



the length of the arc CD is 100cm

what is the angle?

(3)



the arc EF is to have an length of 50cm

what is the angle?

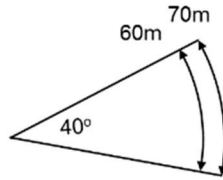
(4) the radius of the London Eye is 60m

there are 32 equally spaced capsules

how far is it between two adjacent capsules?



(5)

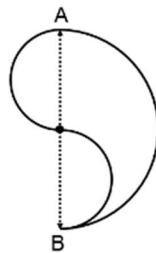


in a 40° (college) discus throwing area

what is the difference in arc lengths for the 60m and 70m arcs?

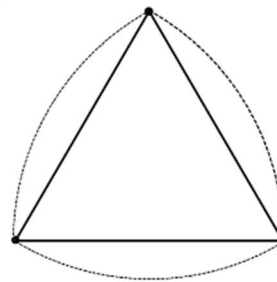
lengths of arcs (ii)

(1)



what is the perimeter of the shape if AB is a diameter of the larger circle, of length 20cm?

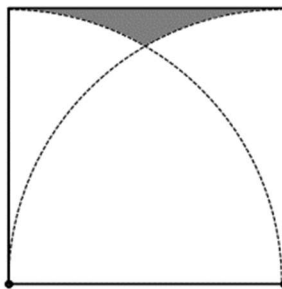
(2)



the length of a side of the equilateral triangle is 8cm

what is the total distance around the three arcs (drawn with centres on the corners of the triangle)?

(3)

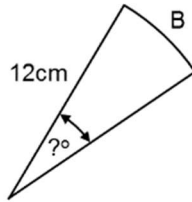
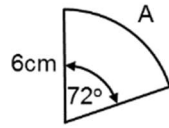


what is the perimeter of the shaded shape if the square has a length of 4cm?

the arcs are drawn with centres on the corners of the square

areas of sectors (ii)

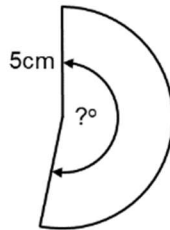
(1)



the two sectors A and B are to have exactly the same area

what angle must sector B have?

(2)



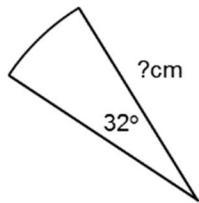
the sector (with a radius of 5cm) is to have an area of 40cm^2

(a) what angle must the sector have?

what angle do you need for an area of 40cm^2 for a sector with radius (b) 4cm (c) 6cm ?

(give your answers correct to the nearest 0.1°)

(3)

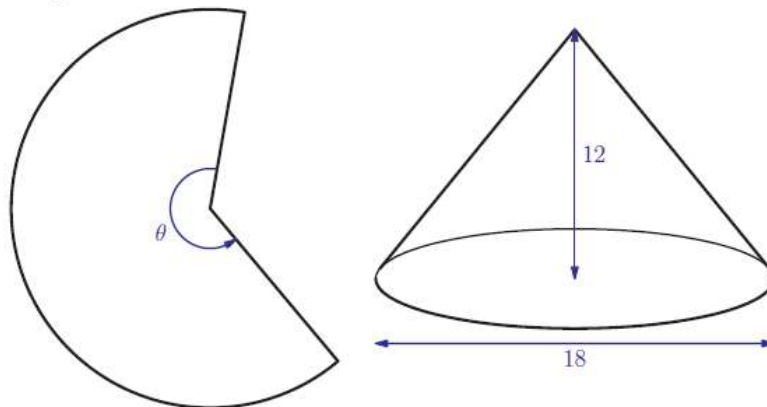


what radius must the sector have so that the area of the sector is 100cm^2 ?

(give your answer correct to two decimal places)

High Challenge:

- 12.** A cone is made by rolling a piece of paper shown in the diagram below.



If the cone is to have height 12 cm and base diameter 18 cm, find the size of the angle marked θ . [6 marks]