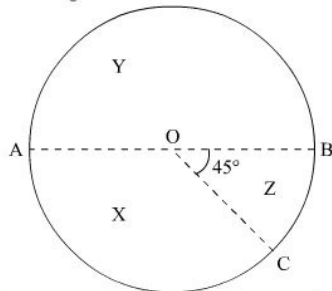## Probability Ex 13.2 Q1

Answer :

Given: A fair spinner is placed at the centre O of the circle. Diameter AOB and radius OC divide the circle into three regions labeled X, Y and Z and angle $\angle BOC=45°$

To find: Probability that the spinner will land in X region?

Total angle of circle is 360°.

$\angle AOC + \angle BOC = 180°\,(\text{Straight angle})$

$\quad \angle AOC + 45° = 180°$

$\qquad \angle AOC = 180° - 45°$

$\qquad \angle AOC = 135° \qquad\qquad\qquad ......(1)$

We know that PROBABILITY $= \dfrac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of "spinner will land in X region" is $\dfrac{135}{360} = \boxed{\dfrac{3}{8}}$
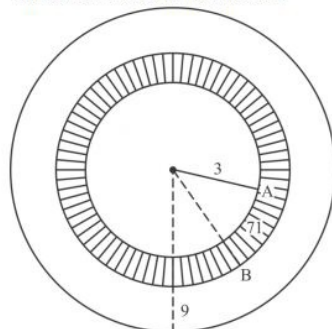
Probability Ex 13.2 Q2

Answer :

Given: A target is shown in figure consists of three concentric circles of radius 3, 7, and 9 cm. A dart is thrown and lands on the target

To find: Probability that the dart will land in shaded region?

Total area of circle with radius 9 cm

Area of circle with radius 9 cm $= \pi r^2$

$\qquad\qquad = \pi (9)^2$

$\qquad\qquad = 81\pi \text{ cm}^2$

Area of shaded portion $= \pi \left(R^2 - r^2 \right)$

$\qquad\qquad = \pi \left(7^2 - 3^2 \right)$

$\qquad\qquad = \pi (7+3)(7-3)$

$\qquad\qquad = \pi (10)(4)$

$\qquad\qquad = 40\pi$

We know that Probability $= \dfrac{\text{Number of favourable event}}{\text{Total number of event}}$

Hence probability of the spinner will land in shaded region is $\dfrac{40\pi}{81\pi} = \boxed{\dfrac{40}{81}}$

Probability Ex 13.2 Q3

Given: A, B, C, and D are the centers of four circles that each have a radius of length one unit. If a point is selected at random from the interior of square ABCD

To find: Probability that the point will be chosen from the shaded region,

In the figure we can see 4 circles of radius 1 unit.
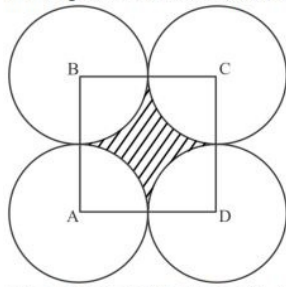
Area of quarter circle with centre A:

$$= \frac{1}{4}\left(\pi r^2\right)$$

$$= \frac{1}{4}\left(\pi \times 1^2\right)$$

$$= \frac{\pi}{4}$$

Since all the circles are of the same radius hence the area of quarter with centre B, C, D will be same as the area of circle of quarter of circle with centre A.

Hence total area covered by 4 quarter circle will be

$$= 4\left(\frac{\pi}{4}\right)$$

$$= \pi \ unit^2$$

Side of the square will be 2 units

Area of square ABCD=4 unit^2

Area of the shaded portion $= \left(4 - \pi\right) \ cm^2$

We know that PROBABILITY

$$= \frac{\text{Number of favourable event}}{\text{Total number of event}}$$

$$= \frac{4 - \pi}{4}$$

$$= 1 - \frac{\pi}{4}$$

Hence probability of the shaded region is $\boxed{1 - \frac{\pi}{4}}$

*********** END **********