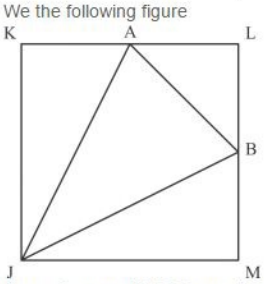
Probability Ex 13.2 Q4

Answer :

Given: JKLM is a square with sides of length 6units. Points A and B are the midpoints of sides KL and ML respectively. If a point is selected at random from the interior of the square

To find: Probability that the point will be chosen from the interior of ΔJAB.

We the following figure



Area of square JLKM is equal to

$= 6^2$

$= 36 \text{ sq units}$

Now we have

$$\text{ar}\left(\Delta KAJ\right) = \frac{1}{2} \times AK \times KJ$$

$$= \frac{1}{2} \times 3 \times 6$$

$$= 9 \text{ units}^2$$

$$\text{ar}(\Delta JMB) = \frac{1}{2} \times JM \times BM$$

$$= \frac{1}{2} \times 6 \times 3$$

$$= 9 \text{ units}^2$$

$$\text{ar}(\Delta ALB) = \frac{1}{2} \times AL \times BL$$

$$= \frac{1}{2} \times 3 \times 3$$

$$= \frac{9}{2} \text{units}^2$$

Now area of the triangle AJB

$$\text{ar}(\Delta AJB) = 36 - 9 - 9 - \frac{9}{2}$$

$$= \frac{27}{2} \text{ units}^2$$

We know that Probability

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

$$= \frac{\frac{27}{2}}{36}$$

$$= \frac{27}{2 \times 36}$$

$$= \frac{3}{8}$$

Hence the Probability that the point will be chosen from the interior of ΔAJB is $\boxed{\frac{3}{8}}$

Probability Ex 13.2 Q5

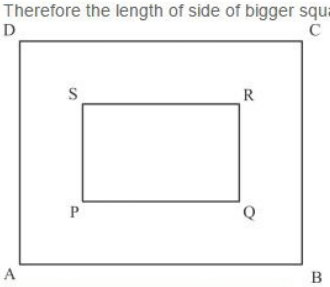
Answer :

Given: A square dart board is shown. The length of a side of the larger square is 1.5 times the length of a side of the smaller square. If a dart is thrown and lands on the larger square

To find: Probability that it will land in the interior of the smaller square

Let the length of smaller square is x cm

Therefore the length of side of bigger square will be $1.5x$ cm



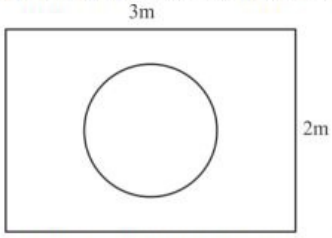
$$\text{Area of bigger square} = (1.5x)^2$$
$$= 2.25x^2 \text{ cm}^2$$
$$\text{Area of smaller square} = x^2 \text{ cm}^2$$

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

Hence probability that the dart will land in the interior of the smaller square is equal to = $\dfrac{x^2}{2.25x^2} = \boxed{\dfrac{4}{9}}$

Answer :

Given: Suppose you drop a tie at random on the rectangular region shown in figure



To find: Probability that it will land in inside the circle of diameter 1m

Total area of circle with diameter 1 m

$$\text{Area of circle with diameter } 1\text{m} = \pi\left(\frac{1}{2}\right)^2$$
$$= \frac{\pi}{4}\text{m}^2$$
$$\text{Area of rectangle } = 3 \times 2$$
$$= 6\,\text{m}^2$$

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

Hence probability that the tie will land in the circle is $\dfrac{\frac{\pi}{4}}{6} = \boxed{\dfrac{\pi}{24}}$

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