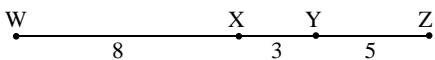


## Lesson 9-6

Objective – To find the probability of events involving geometric figures.

If a point is chosen at random on  $\overline{WZ}$  below, find the probability that it lies on  $\overline{XY}$ .



$$\text{Probability} = \frac{\# \text{ favorable outcomes}}{\# \text{ possible outcomes}} = \frac{XY}{WZ} = \frac{3}{16}$$

Jason is expecting a call from his Mom sometime throughout the day. He will spend 3 hours at the library, 2 hours at the movies, 2 hours at a local restaurant, and 1.5 hours driving from place to place. What is the probability his mom will call during the movie?

$$\begin{aligned} \text{Probability} &= \frac{\# \text{ fav. outcomes}}{\# \text{ poss. outcomes}} = \frac{2 \text{ hours}}{8.5 \text{ hours}} \\ &= \frac{2}{8.5} \left( \frac{2}{2} \right) = \frac{4}{17} \end{aligned}$$

Find the probability that a spinner will land on the colored section.

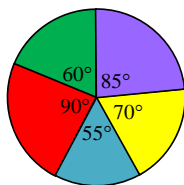
$$1) P(\text{green}) = \frac{60^\circ}{360^\circ} = \frac{1}{6}$$

$$2) P(\text{red}) = \frac{90^\circ}{360^\circ} = \frac{1}{4}$$

$$3) P(\text{blue}) = \frac{55^\circ}{360^\circ} = \frac{11}{72}$$

$$4) P(\text{yellow or purple}) = \frac{155^\circ}{360^\circ} = \frac{31}{72}$$

$$5) P(\text{not red}) = \frac{270^\circ}{360^\circ} = \frac{3}{4}$$



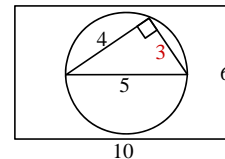
Find the probability that a point chosen at random anywhere within the rectangle below will lie in the indicated section.

$$1) P(\text{circle}) = \frac{19.6}{60} \approx 32.7\%$$

$$2) P(\text{rect. but not circle}) = \frac{60 - 19.6}{60} \approx \frac{40.4}{60} \approx 67.3\%$$

$$3) P(\text{triangle}) = \frac{6}{60} = 10\%$$

$$4) P(\text{circle but not triangle}) = \frac{19.6 - 6}{60} \approx \frac{13.6}{60} \approx 22.7\%$$



$$\text{Area}_{\text{Rect.}} = 10 \cdot 6 = 60 \text{ un}^2$$

$$\text{Area}_{\text{Circle}} = \pi \cdot (2.5)^2 \approx 19.6 \text{ un}^2$$

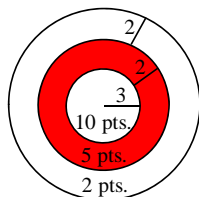
$$\text{Area}_{\text{Triangle}} = \frac{1}{2} (4 \cdot 3) = 6 \text{ un}^2$$

Find the probability that a single dart thrown at random and sticks to the dart board will score the following.

$$1) P(10 \text{ pts.}) = \frac{\text{Inner Circle}}{\text{Outer Circle}} \approx \frac{28.3}{153.9} \approx 18.4\%$$

$$2) P(5 \text{ pts.}) = \frac{\text{Middle} - \text{Inner}}{\text{Outer Circle}} \approx \frac{78.5 - 28.3}{153.9} \approx 32.6\%$$

$$2) P(2 \text{ pts.}) = \frac{\text{Outer} - \text{Middle}}{\text{Outer Circle}} \approx \frac{153.9 - 78.5}{153.9} \approx 49.0\%$$



$$\text{Area}_{\text{Inner Circle}} = \pi \cdot (3)^2 \approx 28.3 \text{ un}^2$$

$$\text{Area}_{\text{Middle Circle}} = \pi \cdot (5)^2 \approx 78.5 \text{ un}^2$$

$$\text{Area}_{\text{Outer Circle}} = \pi \cdot (7)^2 \approx 153.9 \text{ un}^2$$