Chapter 10: Perimeter, Area & Circumference

SECTION 6: GEOMETRIC PROBABILITY

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I Can

- Calculate Geometric Probabilities
- Use geometric probabilities to predict results in real life

Review Probability

Remember that in probability, the set of all possible outcomes of an experiment is called the *sample space.* Any set of outcomes is called an *event.*

If every outcome in the sample space is equally likely, the *theoretical probability* of an event is

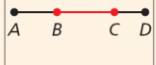
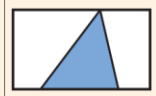
$$P = \frac{\text{number of outcomes in the event}}{\text{number of outcomes in the sample space}}.$$

Geometric Probability

Geometric probability is used when an experiment has an infinite number of outcomes.

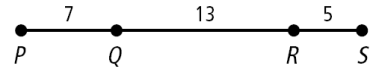
In **geometric probability**, the probability of an event is based on a ratio of geometric measures such as length or area. The outcomes of an experiment may be points on a segment or in a plane figure.

Geometric Probability

Geometric Probability			
Model	Length	Angle Measure	Area
Example			
Sample space	All points on $\overline{AD}$	All points in the circle	All points in the rectangle
Event	All points on $\overline{BC}$	All points in the shaded region	All points in the triangle
Probability	$P = \frac{BC}{AD}$	$P = \frac{\text{measure of angle}}{360°}$	$P = \frac{\text{area of triangle}}{\text{area of rectangle}}$

Length

A point is chosen randomly on *PS*. Find the probability of each event.

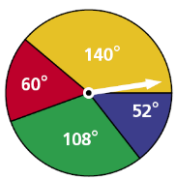


The point is on $\overline{RS}$.

The point is not on $\overline{QR}$.

Angle Measures

Use the spinner to find the probability of each event.

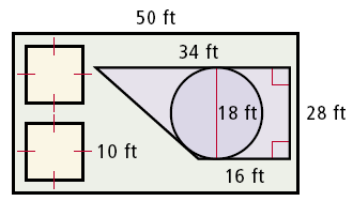


the pointer landing on yellow

the pointer landing on blue or red

Areas

Find the probability that a point chosen randomly inside the rectangle is in each shape. Round to the nearest hundredth.



the circle

the trapezoid

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