Inspiring Greatness

ISD

INDEPENDENCE SCHOOL DISTRICT

Math Virtual Learning

Geometry/Honors Geometry

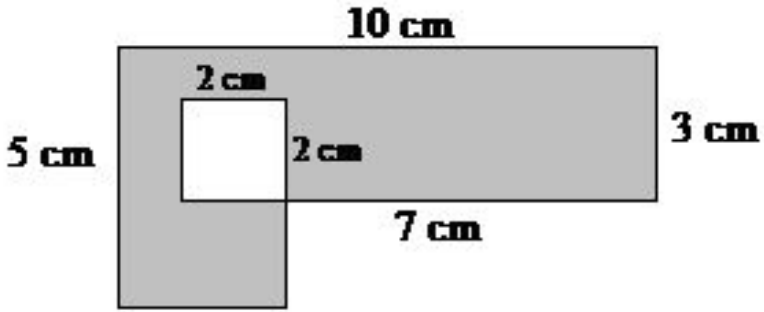
May 18, 2020

Geometry
Lesson: May 18, 2020

Objective/Learning Target:
Describe events as subsets of sample space

Bell Ringer:

Find the area of the shaded region:



Bell Ringer Answer:

Solution:

Step 1: Find area of inner square = $2\text{ cm} \times 2\text{ cm} = 4\text{ cm}^2$

Step 2: Find area of outer shape = $(2\text{ cm} \times 3\text{ cm}) + (10\text{ cm} \times 3\text{ cm})$

$= 6\text{ cm}^2 + 30\text{ cm}^2$

$= 36\text{ cm}^2$

Step 3: Area of shaded region = area of outer shape – area of inner square

$= 36\text{ cm}^2 - 4\text{ cm}^2$

$= 32\text{ cm}^2$

Let's Get Started: Go through the following slides and try the example problems.

VOCABULARY:

Some words have special meaning in Probability:

Experiment: a repeatable procedure with a set of possible results.

Example: Throwing dice

We can throw the dice again and again, so it is repeatable.

The set of possible results from any single throw is {1, 2, 3, 4, 5, 6}

VOCABULARY:

Outcome: A possible result of an experiment.

Example: Getting a "6"

VOCABULARY:

Sample Space: all the possible outcomes of an experiment.

Example: choosing a card from a deck

There are 52 cards in a deck (not including Jokers)

So the **Sample Space is all 52 possible cards**: {Ace of Hearts, 2 of Hearts, etc... }

Probability:

In general:

$$\text{Probability of an event happening} = \frac{\text{Number of ways it can happen}}{\text{Total number of outcomes}}$$

Example: Alex wants to see how many times a "double" comes up when throwing 2 dice.

The **Sample Space** is all possible **Outcomes** (36 Sample Points):

{1,1} {1,2} {1,3} {1,4} ... {6,3} {6,4} {6,5} {6,6}

The **Event** Alex is looking for is a "double", where both dice have the same number. It is made up of these **6 Sample Points**:

{1,1} {2,2} {3,3} {4,4} {5,5} and {6,6}

These are Alex's Results:

Experiment	Is it a Double?
{3,4}	No
{5,1}	No
{2,2}	**Yes**
{6,3}	No
...	...

After 100 **Experiments**, Alex has 19 "double" **Events** ... is that close to what you would expect?

Try the next practice problems on your own! An experiment consists of tossing a coin and observing the side that lands up and then rolling a fair 4-sided die and observing the number rolled. Let H and T represent heads and tails respectively

Given: Sample Space = { H1 , H2 , H3 , H4 , T1 , T2 , T3 , T4 }

a) What is the event E1 that an even number is rolled?

b) What is the event E2 that a head is tossed or a 3 is rolled?

c) What is the event E3 that a tail is tossed and an odd number is rolled?

Answer Key:

Here you will find the answers to the previous four questions.
Check your answers below.

a) E1 = { H2 , H4 , T2 , T4 }

b) E2 = { H1 , H2 , H3 , H4 , T3 }

c) E3 = { T1 , T3 }

Additional Resources:

Click on the link below to get additional practice and to check your understanding!

Probability Using Sample Spaces Practice