# Expermg Grateres <br> <br> Math Virtual Learning <br> <br> Math Virtual Learning <br> <br> Geometry/Honors Geometry 

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May 19, 2020

## Geometry <br> Lesson: May 19, 2020

Objective/Learning Target:
Apply and interpret the addition rule for calculating probabilities.

Bell Ringer: Describe the event E "the spinner points at an even number".


## Bell Ringer Answer: $\mathrm{E}=\{2,4\}$

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


Mutually Exclusive: Cannot happen at the same time.

Additional Rule 1: When two events, A and B , are mutually exclusive, the probability that $A$ or $B$ will occur is the sum of the probability of each event.

$$
P(A \text { or } B)=P(A)+P(B)
$$



Example Problem:A single 6 -sided die is rolled. What is the probability of rolling a 2 or a 5 ?

Answer:
$P(2)=1 / 6$
$P(5)=1 / 6$
$P(2$ or 5$)=1 / 8+1 / 8=1 / 3$


Additional Rule 2: When two events, $A$ and $B$, are non-mutually exclusive, the probability that $A$ or $B$ will occur is:

$$
P(A \text { or } B)=P(A)+P(B)-P(A \text { and } B)
$$

In the rule above, $P(A$ and $B)$ refers to the overlap of the two events.

Example Problem: In a math class of 30 students, 17 are boys and 13 are girls. On a unit test, 4 boys and 5 girls made an A grade. If a student is chosen at random from the class, what is the probability of choosing a girl or an A student?

Answer:
$P($ girl or $A)=P($ girl $)+P(A)-P($ girl and $A)$
$P($ girl or $A)=(13 / 30)+(9 / 30)-(5 / 30)$
$P($ girl or $A)=17 / 30$


## Try the next practice problems on your own!

1) A spinner has 4 equal sectors colored yellow, blue, green, and red. What is the probability of landing on red or blue after spinning this spinner?

2) One hundred students were surveyed about their preference between dogs and cats. The following two-way table displays data for the sample of students who responded to the survey. Find the probability that a randomly selected student prefers dogs or is female.

| Preference | Male | Female | TOTAL |
| :--- | :---: | :---: | :---: |
| Prefers dogs | 36 | 20 | 56 |
| Prefers cats | 10 | 26 | 36 |
| No preference | 2 | 6 | 8 |
| TOTAL | 48 | 52 | 100 |



## Answer Key:

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

1) $P($ red or blue $)=1 / 2$
2) $P($ prefers dogs or is female $)=22 / 25$

## Additional Resources:

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

## Addition Rule for Probability Practice

