

# Unit 9

Your last Unit in Grade  
9 Math!!!

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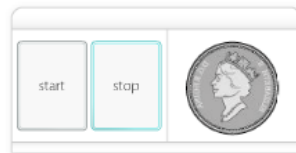


Statistics and  
Probability








# Probability



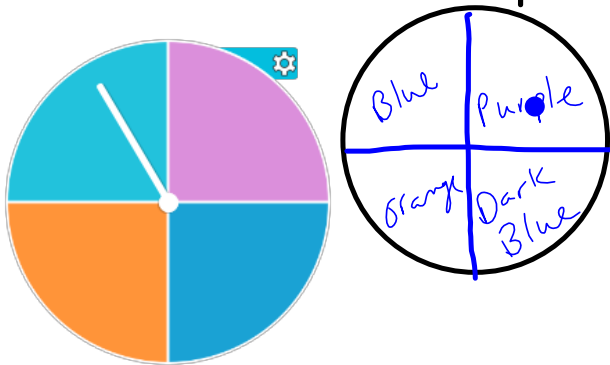
Likelihood that an event will occur



**Forecast** **More info** +

Today	Sat	Sun	Mon	Tue	Wed	Thu
 19°C	 21°C 8°C	 20°C 6°C	 25°C 9°C	 21°C 9°C 40%	 16°C 11°C 40%	 17°C 7°C

**Theoretical Probability** -the number of favorable outcomes written as a fraction of the total number of possible outcomes



1. What is the probability of spinning a purple?

$\frac{1}{4}$

2. Predict the color on next spin.

3. Next spin?

**Experimental Probability:** Probability of an event calculated from **experimental results**.

**[do the experiment]**

**Subjective judgement**[usually based on feelings or opinions]- spinning the wheel chance of getting purple is  $\frac{1}{4}$  but you may feel strongly that the wheel will always land on orange

# Expressing probabilities:

Percent

Decimal

Fraction

40%

0.4

$\frac{40}{100}$

Probability range between 0 and 1

0%

100%

Cannot have a probability greater than 1

1. Indicate whether each decision is based on theoretical probability, experimental probability, or subjective judgment. Explain how you know.
- a) The last 10 <sup>feelings</sup> times Jerome tried to access a certain Internet website, he got an error message saying that the site was unavailable. So, he decides the site no longer works and does not try to access it again.

## Experimental probability

- b) When Karen's mother learns she is pregnant, she celebrates by buying a pink baby blanket because she has a feeling the baby will be a girl.

## Subjective Judgement.

- c) Aaron chooses a long email password because it is more difficult to determine a long password than a short one.

## Theoretical probability.

2. Angela visits a website to read reviews about a new MP3 player. There were three reviews: two people thought it was great, and one person thought it was terrible. So, Angela concludes that there is about a 66% chance that she will be happy with the MP3 player. What assumptions did Angela make?

## Assumptions:

- Angela is like the two surveyed that liked it.
- MP3 player will work.
- Angela will be able to buy it.

Sunday you went to Pita Pit at 3 o'clock and waited only 10 min in line. You are going to go again today at 3 o'clock so the wait is short. What **assumptions** are you making?

- 1) The line on Monday will be the same as Sunday
- 2) Pita Pit open
- 3) Same workers/Supplies
- 4) Can get there for 3.

## Page 427 #3,#4[a],#5,#6.

3. Indicate whether each decision is based on theoretical probability, experimental probability, or subjective judgment.

Explain how you know.

- a) The last two times Andrei won a prize at a coffee shop, he ordered a medium hot chocolate. Andrei never won when he ordered a large hot chocolate, so today he orders a medium hot chocolate.
- b) Instead of buying her own lottery ticket, Martha pools her money with the people at work to buy more tickets and increase her chances of winning.
- c) Anita boards the last car of a train because, in the past, the last car always had available seats.
- d) Doug will not travel by airplane even though experts say it is safer to fly than drive.

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4. What assumptions is each person making?
  - a) Based on past math quizzes, Claudia says she has a 90% chance of getting a perfect score on her next math quiz.
  - b) Six times out of ten, Omar gets stuck in traffic when he leaves work. So, he calculates that his chances for getting stuck in traffic today after work are 60%.

### **Apply**

5. The weather forecast is 70% chance of rain. Winona had planned to go canoeing. Explain how the decision she makes may be based either on probability or on subjective judgment.
6. The student council has a draw for a prize during the school dance. Lei decides not to enter the draw because all of his classmates have entered and he feels unlucky today. Is Lei's decision based on probability, on subjective judgment, or both? Explain.