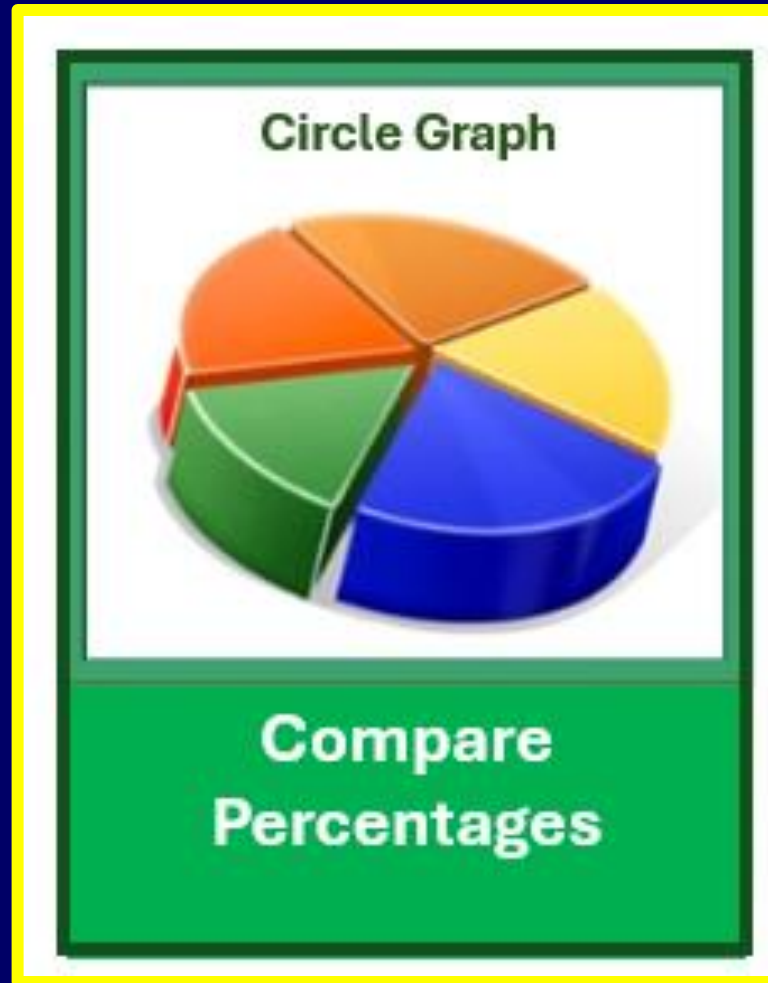
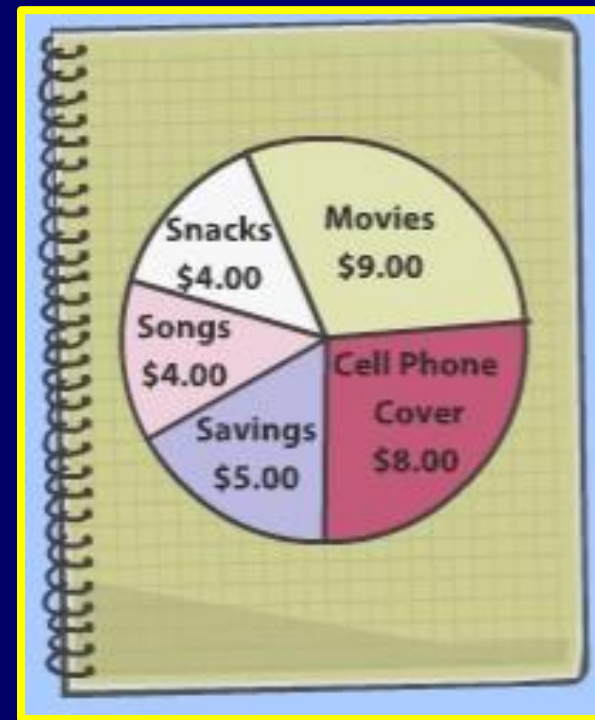


Circle Graphs



Circle Graphs

Circle graphs, also called pie charts are used for comparing parts of a whole or percentages.



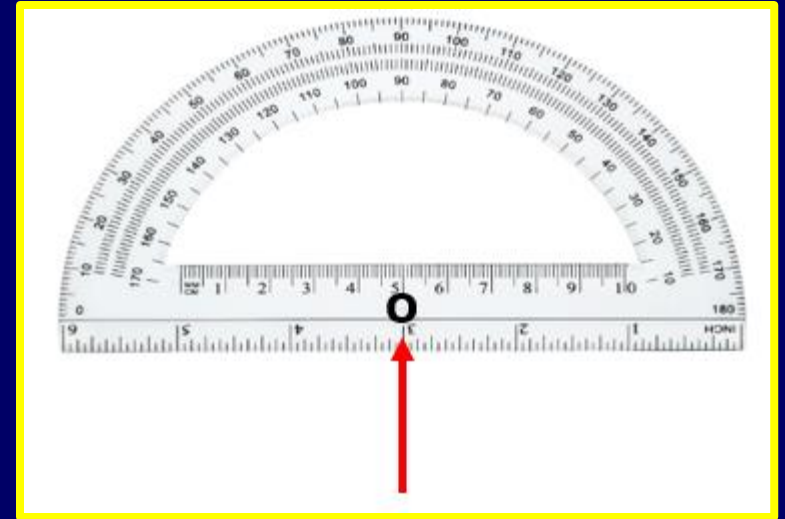
Creating a Circle Graph

Circle graphs can be created easily using a bit of math and a protractor.

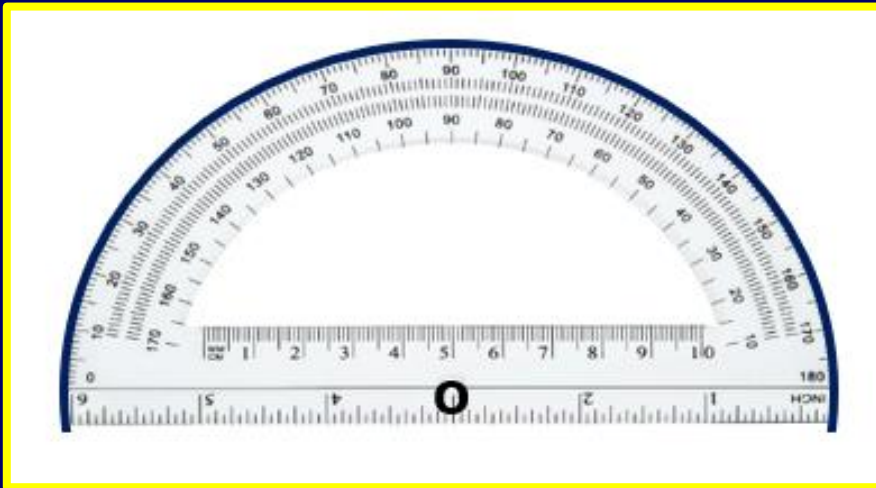


Draw a Circle

First, place a mark in the hole on the protractor.

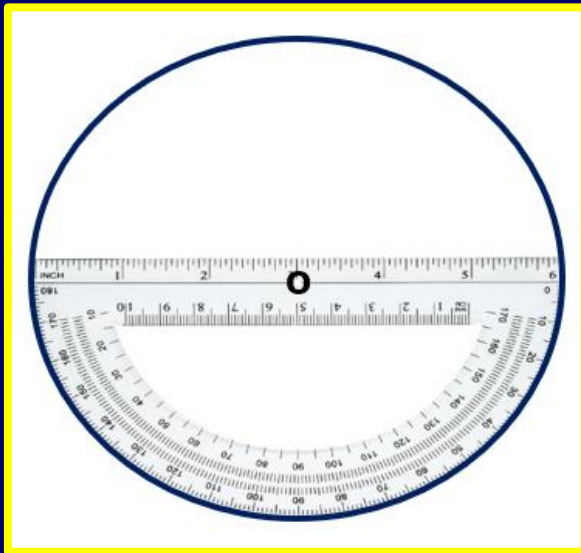
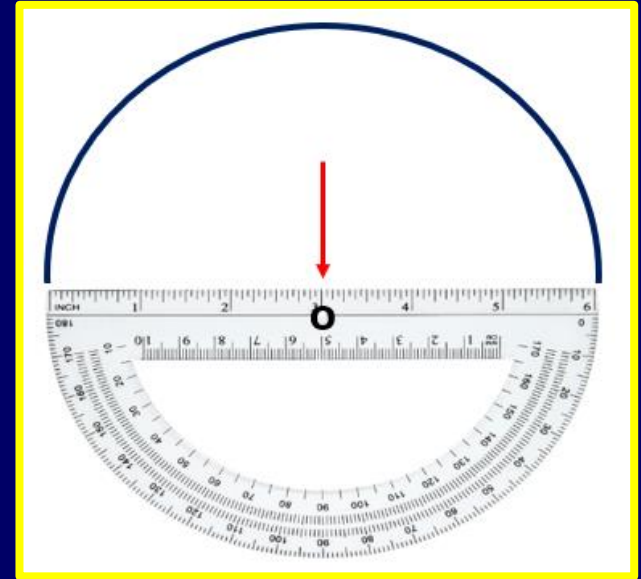


Next, trace around the protractor.



Draw a Circle





Then, turn your protractor around and line the hole up with the mark.



Finally, trace around the protractor, again.

Gather Data

Below are the results for a survey on student's choices for a class trip.

	Space Camp	$\frac{76}{228}$	76 out of 228
	Niagara Falls	$\frac{38}{228}$	38 out of 228
	New York City	$\frac{95}{228}$	95 out of 228
	Extreme Supreme Theme Park	$\frac{19}{228}$	19 out of 228

Make a Table

First, make a four columned table with enough rows for each category, the category labels, and an extra row at the bottom.

Categories			
Space Camp			
Niagara Fall			
New York City			
Theme Park			

Column Titles

Title the columns as Categories, Frequency, Percentage (%), and Angle ($^{\circ}$).

Categories	Frequency	Percentage (%)	Angle ($^{\circ}$)
Space Camp			
Niagara Fall			
New York City			
Theme Park			

Frequency

Write down the frequency for each category.

Categories	Frequency	Percentage (%)	Angle (°)
Space Camp	76		
Niagara Fall	38		
New York City	95		
Theme Park	19		
	228		

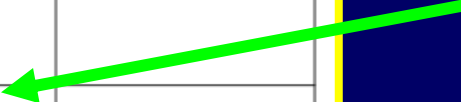
Calculate Percentages

Calculate the percentage for each category and record them in the chart.

$$\frac{\text{Category Frequency}}{\text{Total Frequency}} \times 100$$

Categories	Frequency	Percentage (%)	Angle (°)
Space Camp	76	33	
Niagara Fall	38	17	
New York City	95	42	
Theme Park	19	8	
	228	100	

Check your work



Calculate Angles

Calculate the angles for each category and record them in the chart.

$$360 \times \text{percentage (\%)} = \text{Angle } ^\circ$$

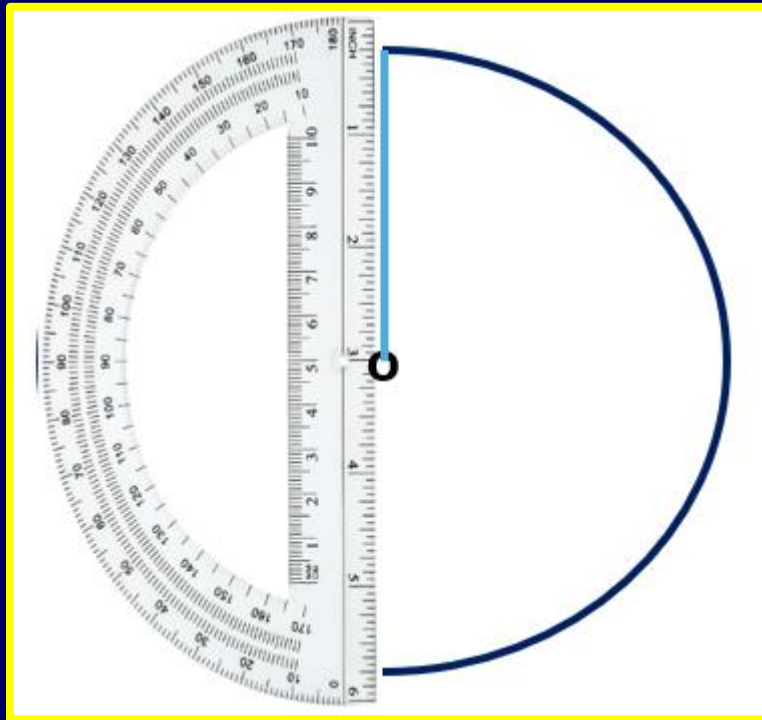
Categories	Frequency	Percentage (%)	Angle (°)
Space Camp	76	33	119
Niagara Fall	38	17	61
New York City	95	42	151
Theme Park	19	8	29
	228	100	360

Check your work



Filling in the Chart

Begin by using the protractor to draw a vertical line from the center dot to top of the circle.

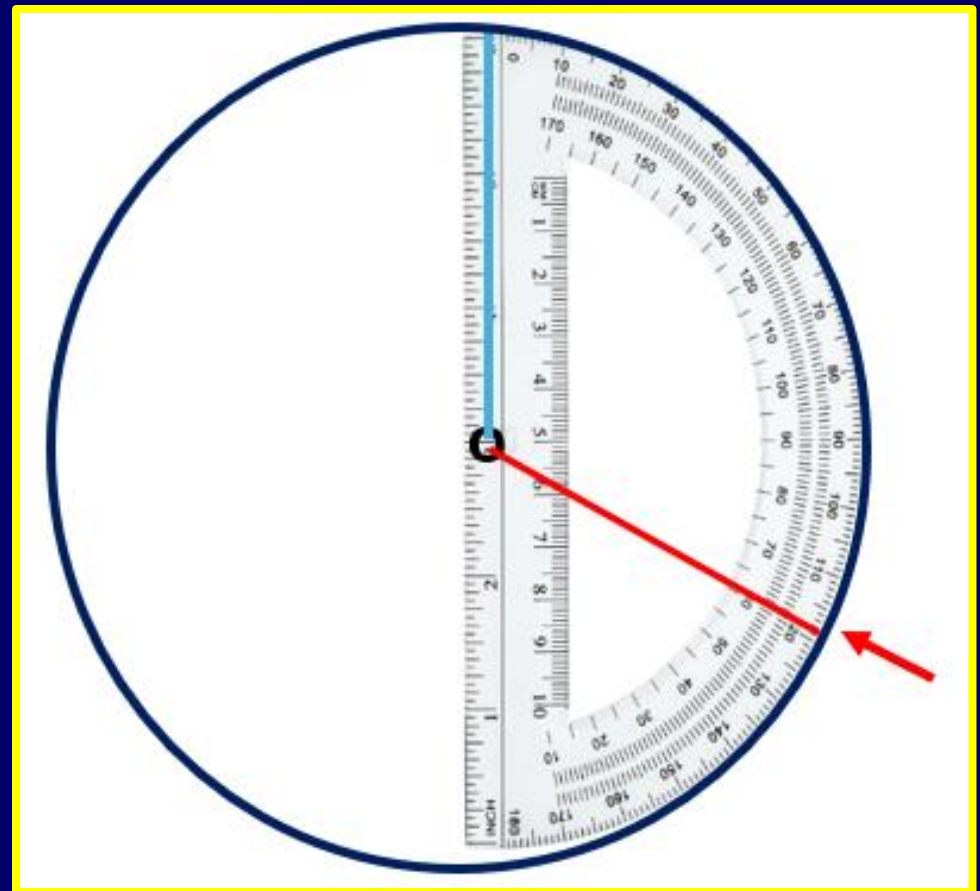


Filling in the Chart

Line your protractor up with that line and measure your first angle.

Categories	Angle (°)
Space Camp	119
Niagara Fall	61
New York City	151
Theme Park	29
	360

Draw a line from the center dot to the edge of the circle.

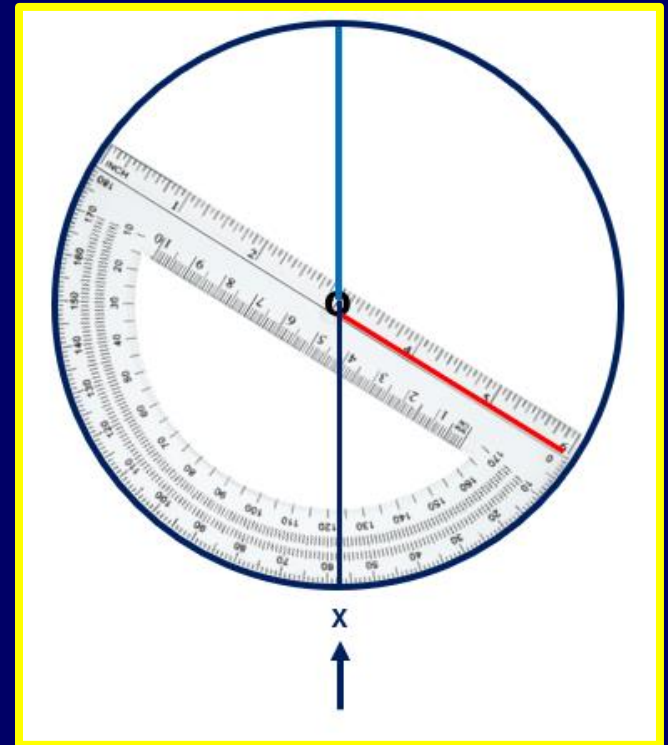


Filling in the Chart

Line the flat edge of the protractor up with the last line drawn and measure your next angle.

Categories	Angle (°)
Space Camp	119
Niagara Fall	61
New York City	151
Theme Park	29
	360

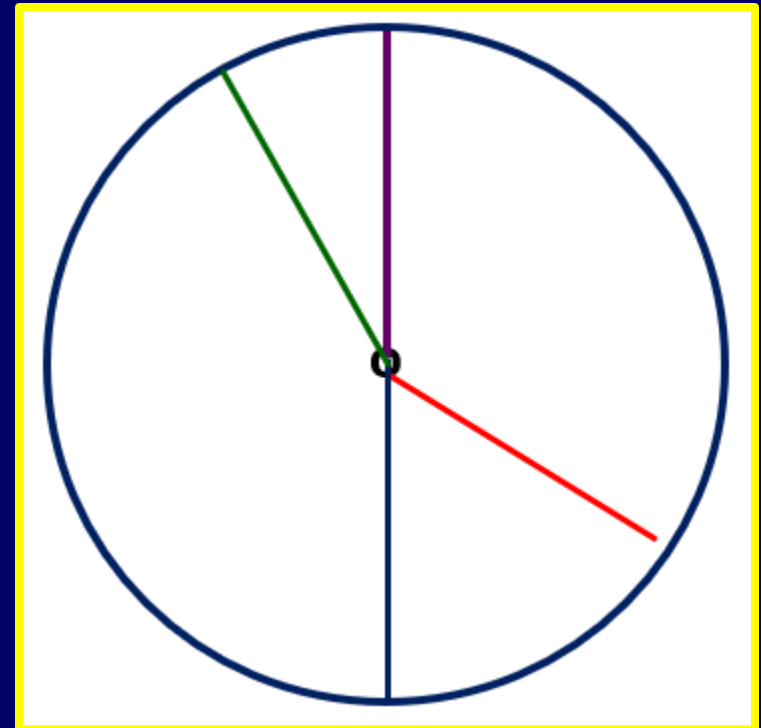
Draw a line from the center dot to the edge of the circle.



Filling in the Chart

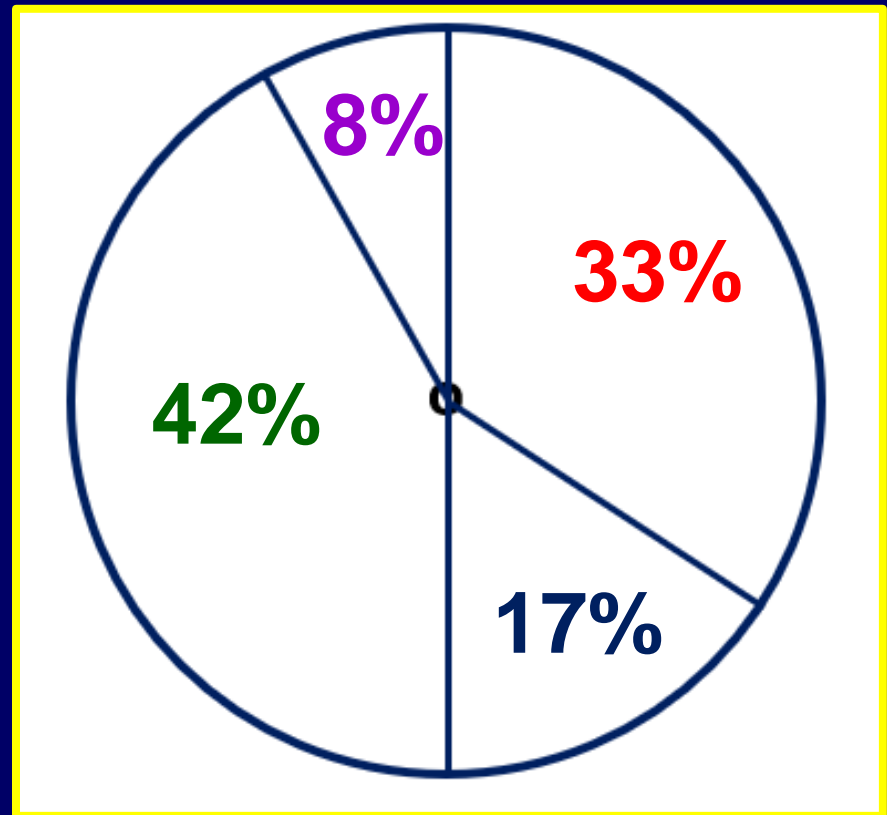
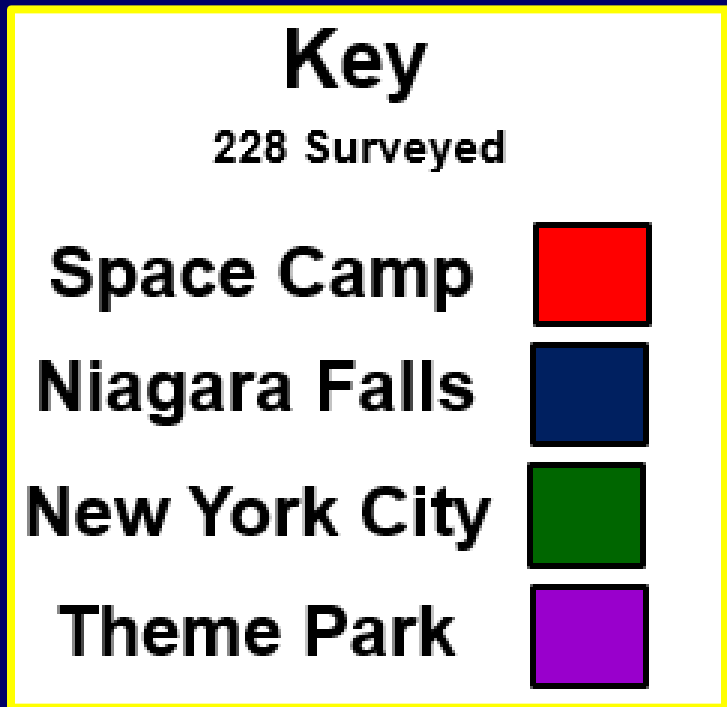
Repeat the procedure with any remaining angles.

Category	Frequency	Angle
Space Camp	76	120
Niagara Falls	38	60
New York City	95	150
Theme Park	19	30
	228	360



Create a Key

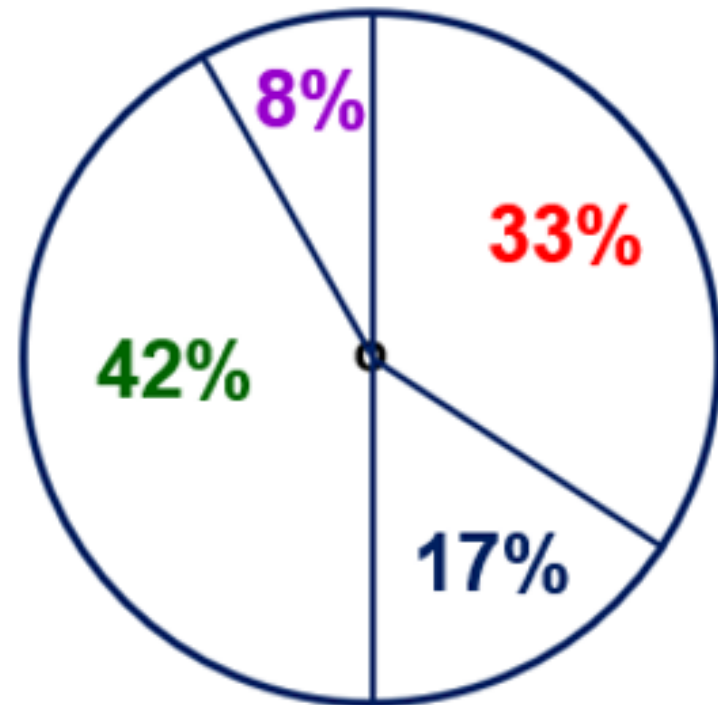
Create a key, usually with colors, and place the percentages in each section.



Title on Graph

Create a descriptive title

Student Preferences for Class Trip



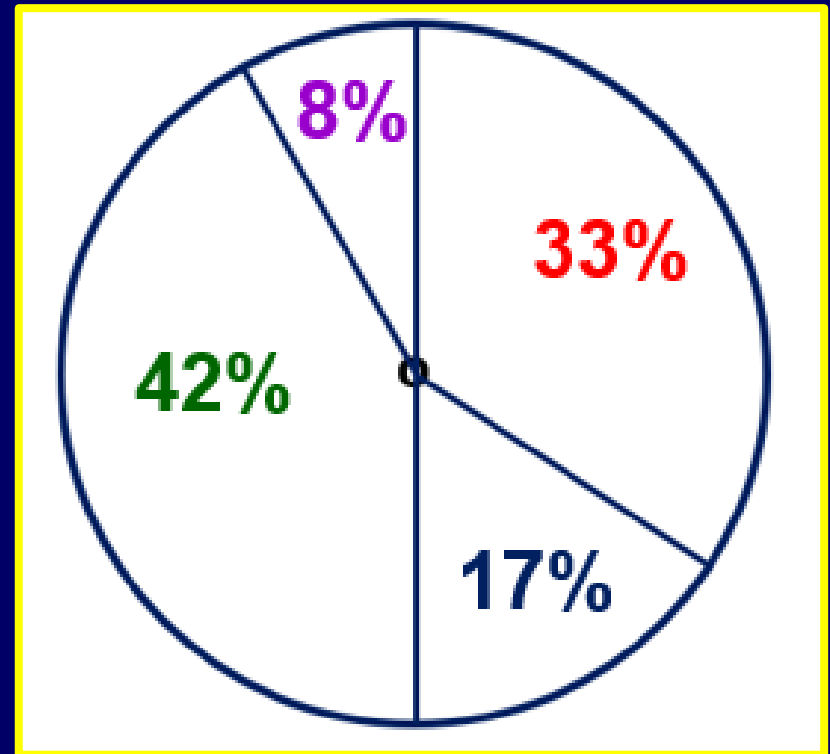
Circle Graph Math

How many more students wanted to go to NYC, over Space Camp?

$$228 \times 0.42 = 95$$

$$228 \times 0.33 = 75$$

20



Key

228 Surveyed

Space Camp	
Niagara Falls	
New York City	
Theme Park	

The End

