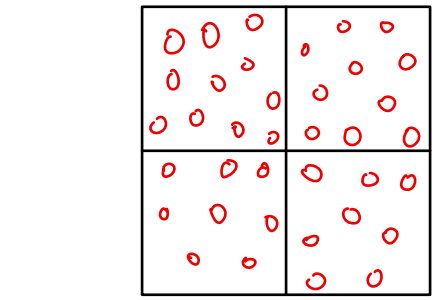
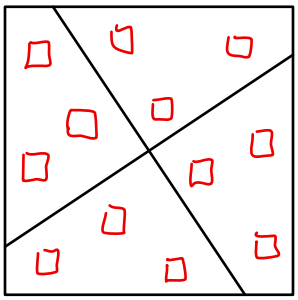
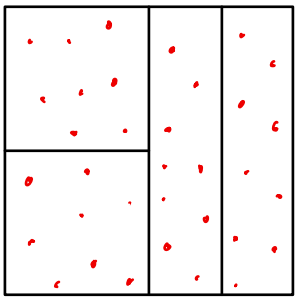
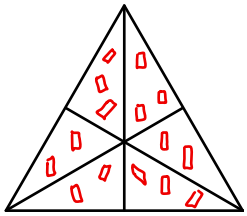
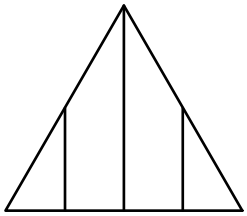
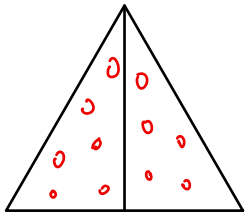
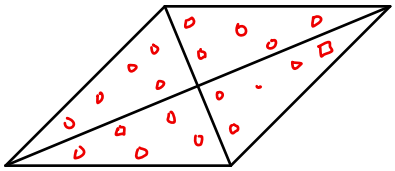
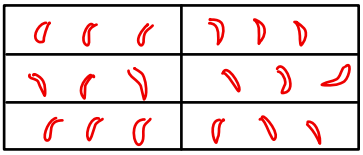
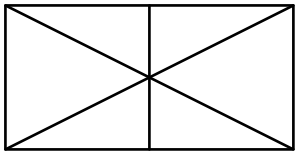
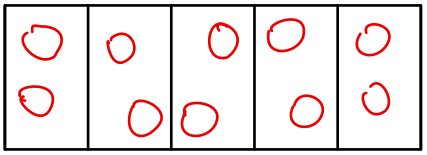
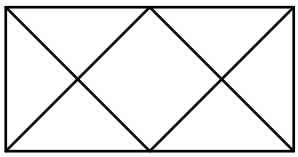
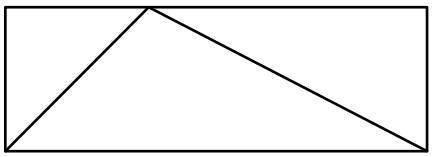
FRACTION NINJA BOOTCAMP LEVEL I

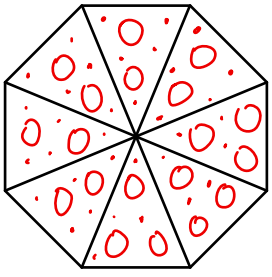
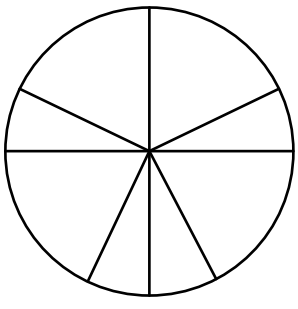
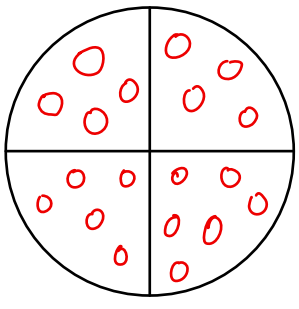
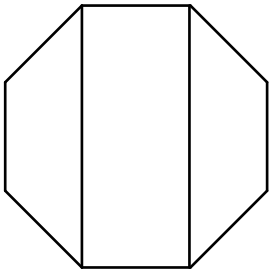
EQUAL-SIZED SHAPES

Help the Puff Monsters Share their Pizza!

Puff monsters make pizzas in every shape! They love circle pizzas, square pizzas, and triangle pizzas too. But most of all, they love fairness. If one puff monster gets a bigger piece of pizza than another, then all the puff monsters have temper tantrums!

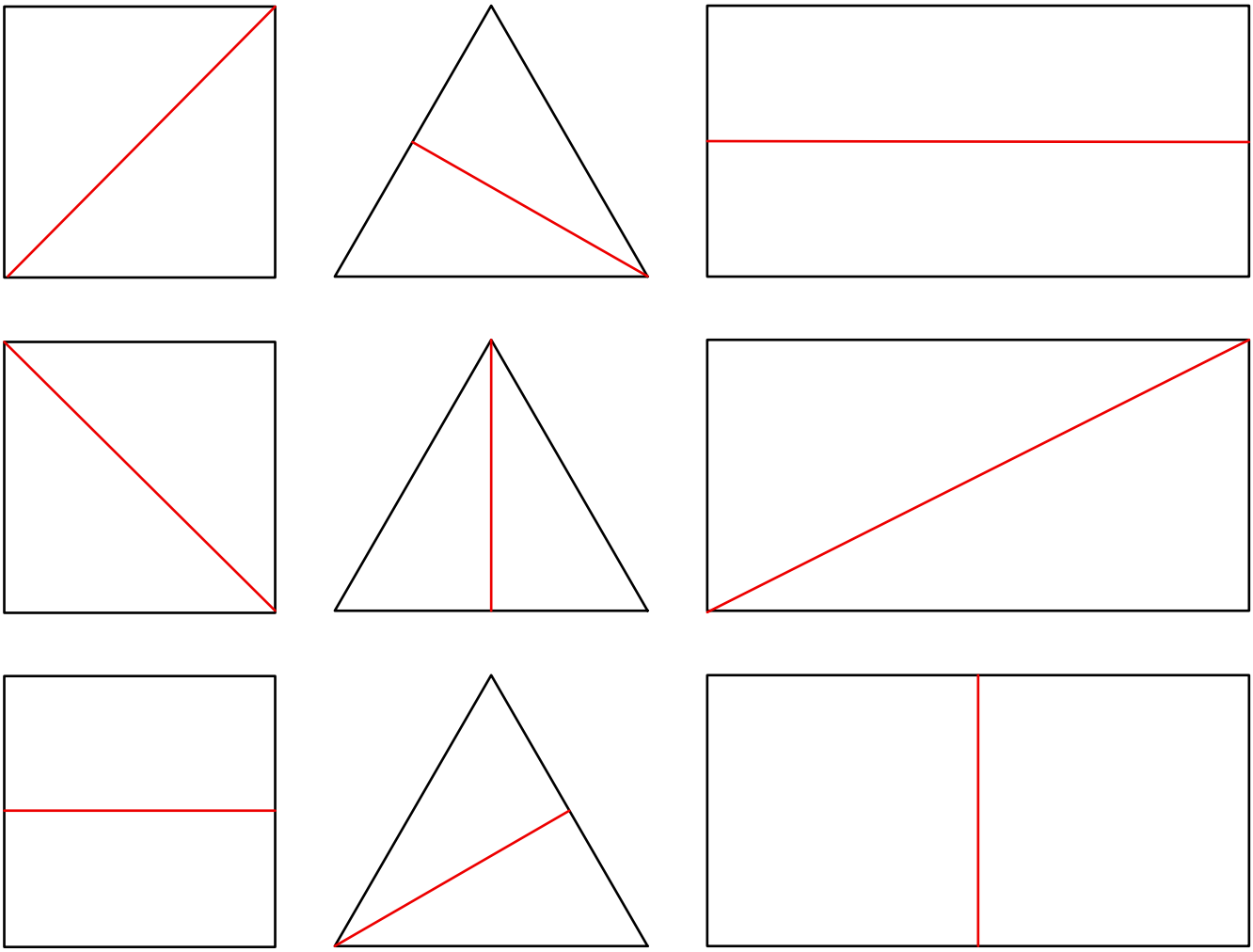
Help the puff monsters stay happy by coloring in each of the equally divided shapes. Then decorate them with pizza toppings you think the monsters would like.

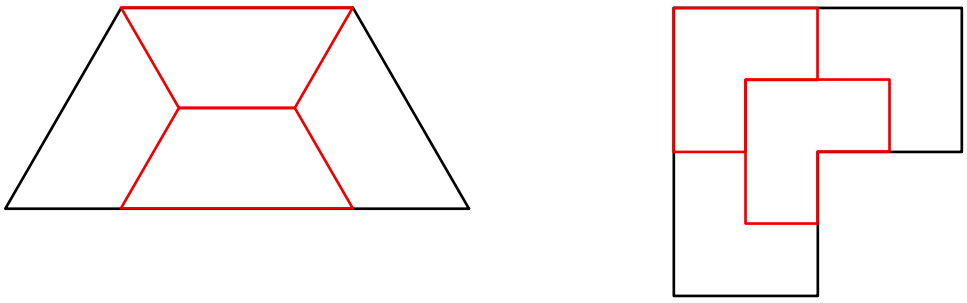
EQUAL-SIZED SHAPES

Can you draw a line to divide each of these puff monster pizza shapes in half?
Can you find different ways to cut the same shape in half?



Bonus Thinking Puzzle!

Can you draw lines to divide these shapes into 4 equal pieces? This is a tricky challenge question! If you'd like a hint, there is one upside down at the bottom of this page.

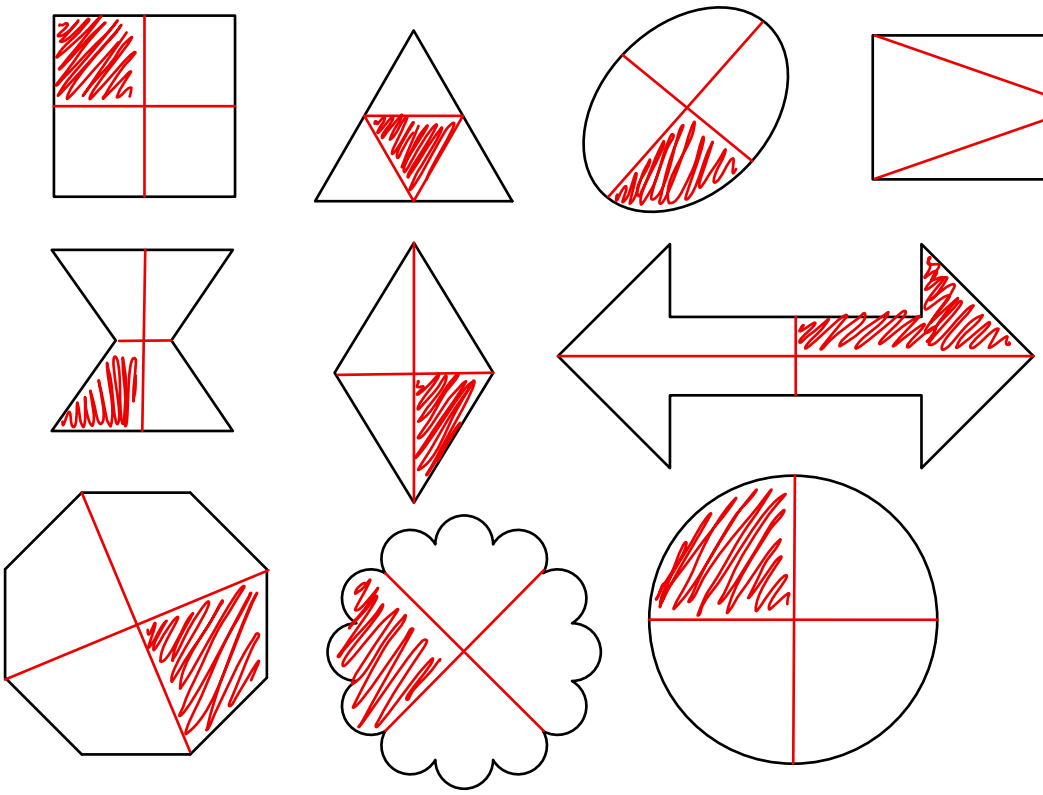


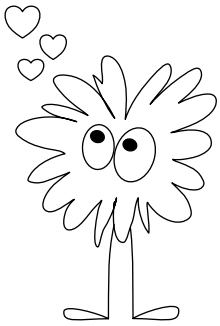
Hint: the 4 small equal-sized pieces will have the same shape as the large piece!

UNIT FRACTIONS

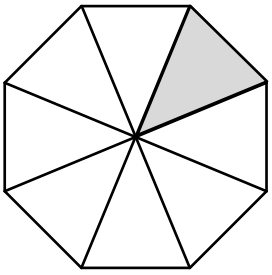
What is Fluffy's share of the pizza?

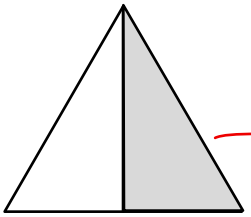
Four pizza-loving puff monsters would like to share a pizza. They plan to divide the pizza into 4 equal pieces. Fluffy would like to see what his share of the pizza will look like. Can you color 1/4 of each shape for Fluffy?





Match the fraction with the picture



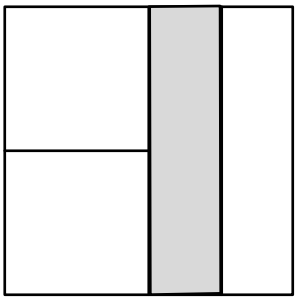


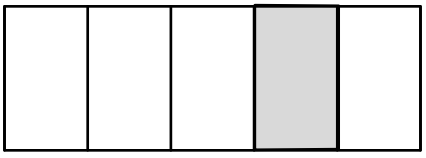
$\frac{1}{5}$

$\frac{1}{4}$

$\frac{1}{8}$

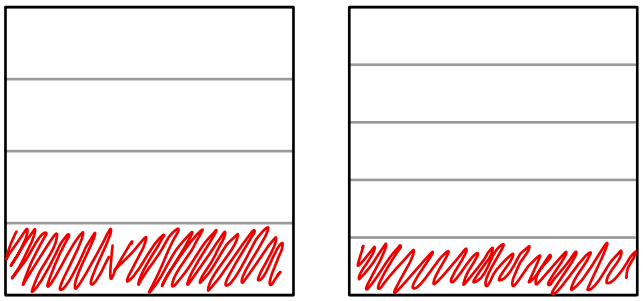
$\frac{1}{2}$



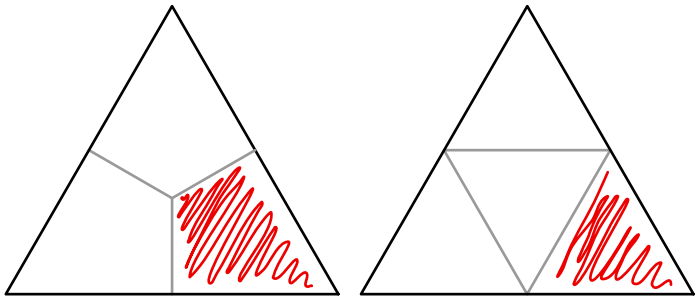


WHICH IS LARGER?

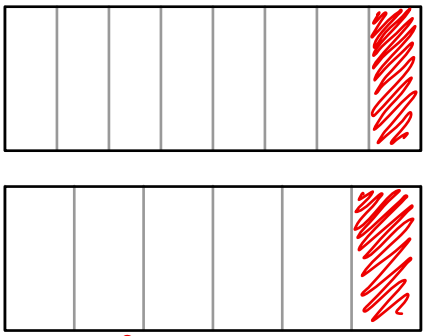
Color in each fraction to see which is larger and then circle the answer.



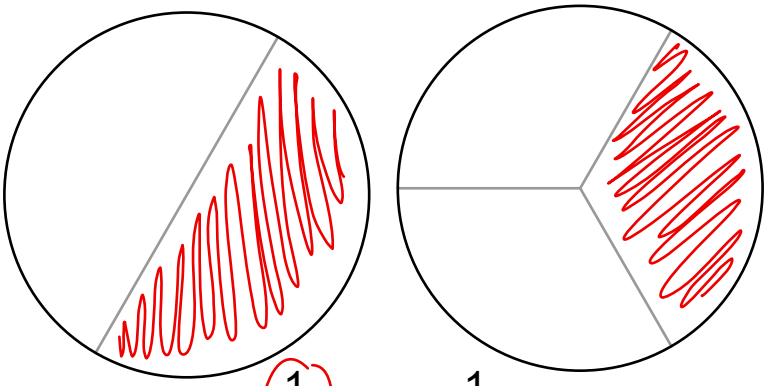
$\frac{1}{4}$ or $\frac{1}{5}$



$\frac{1}{3}$ or $\frac{1}{4}$



$\frac{1}{6}$ or $\frac{1}{8}$



$\frac{1}{2}$ or $\frac{1}{3}$

Bonus Thinking Puzzle!

Circle the fraction(s) that match both clues:

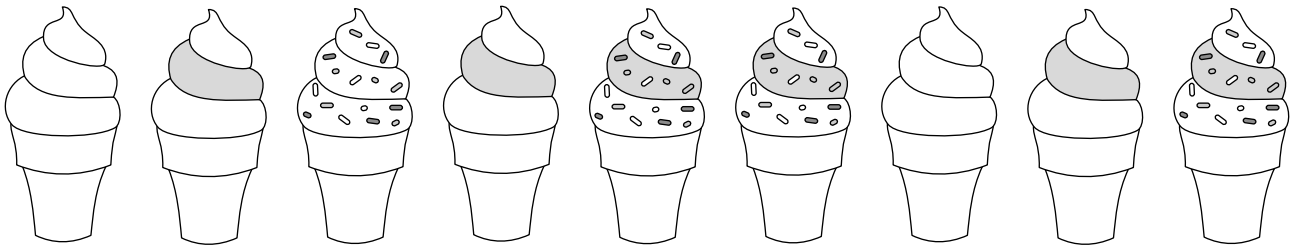
1) I am less than $\frac{1}{3}$.

2) I am more than $\frac{1}{6}$.

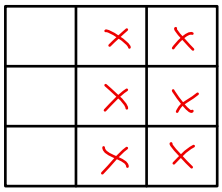
$\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{7}$ $\frac{1}{8}$ $\frac{1}{9}$

TASTY FRACTIONS

The manager of Tasty Treats needs help figuring out which of their ice cream cones are the most popular! Take a look at the picture below, which shows the nine cones sold today. Use the information to color in the model to match. Finally, write the correct number for the numerator to compete the fraction.



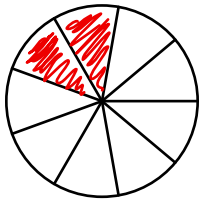
Model:



What fraction are swirl?

$\frac{6}{9}$

Model:



What fraction are plain vanilla?

$\frac{2}{9}$

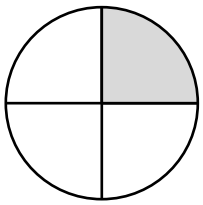
Model:

What fraction have sprinkles?

$\frac{4}{9}$

Now take a look at the other treats in the shop! Use the information in the **models** to color in the treats! When you are finished, complete each fraction by writing the correct number for the denominator.

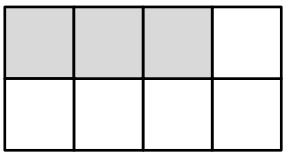
Model:



What fraction of the ice cream cones have sprinkles?

$\frac{1}{4}$

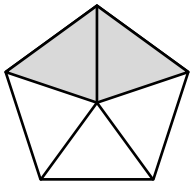
Model:



What fraction of the taffy have a stripe?

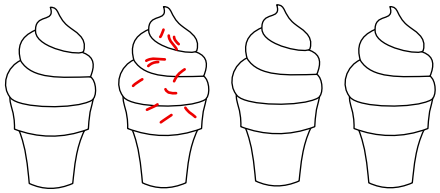
$\frac{3}{8}$

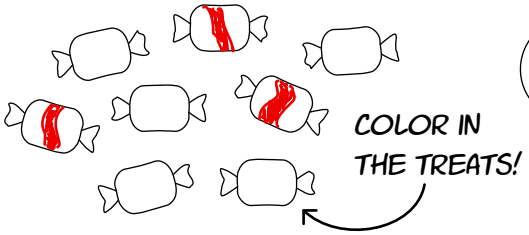
Model:

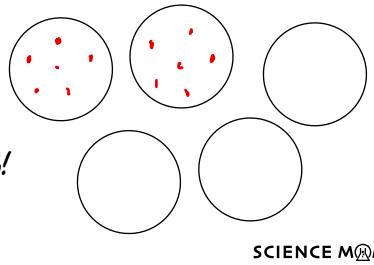


What fraction of the cookies are chocolate chip?

$\frac{2}{5}$



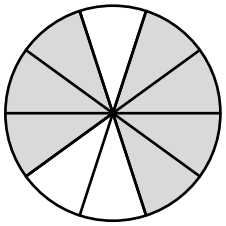




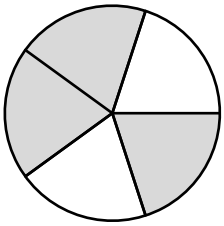
WRITE THE FRACTIONS

What fraction of each figure is shaded? Write the fraction in the boxes below each figure:

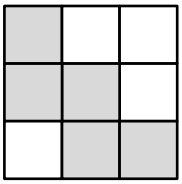
$\frac{2}{5}$



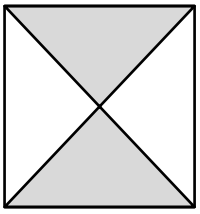
$\frac{7}{10}$



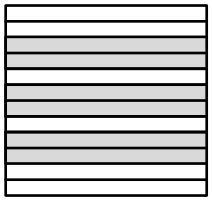
$\frac{3}{5}$



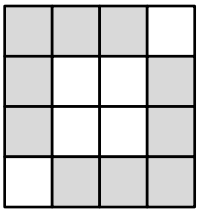
$\frac{5}{9}$



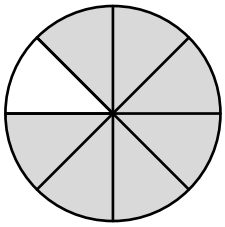
$\frac{2}{4}$



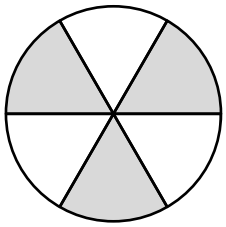
$\frac{6}{12}$



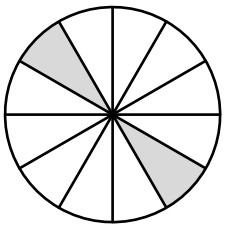
$\frac{10}{16}$



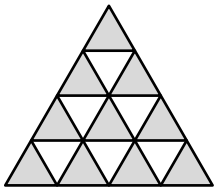
$\frac{7}{8}$



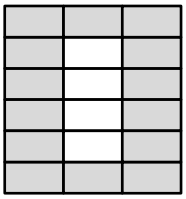
$\frac{3}{6}$



$\frac{2}{12}$



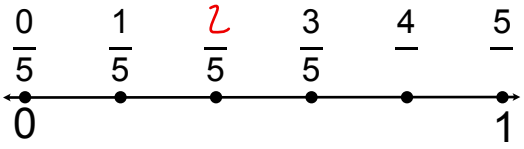
$\frac{10}{16}$

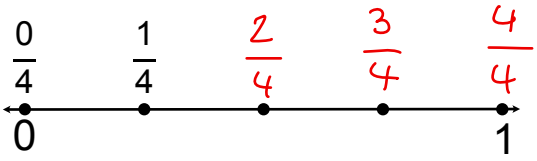


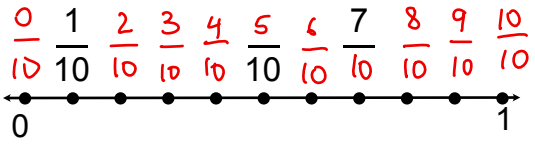
$\frac{14}{18}$

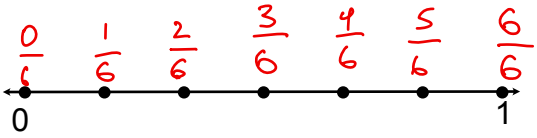
FRACTIONS ON THE NUMBER LINE

Fill in the missing fractions by labeling each point on the number line.

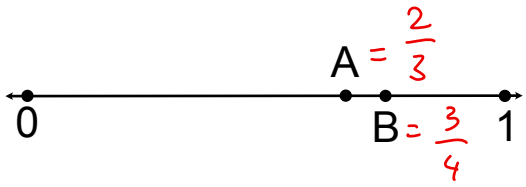


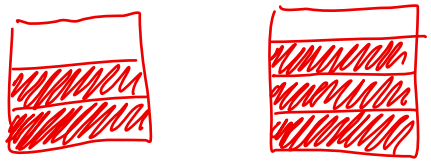






On the number line below, there are points labeled A and B. You know that one of the points is 2/3 and the other is ¾. How can you figure out which is which? Explain your thinking.

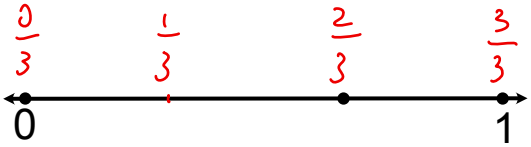


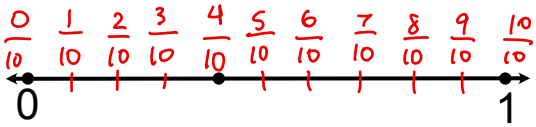


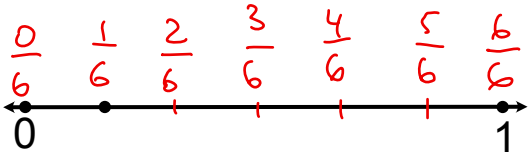
$\frac{2}{3} < \frac{3}{4}$

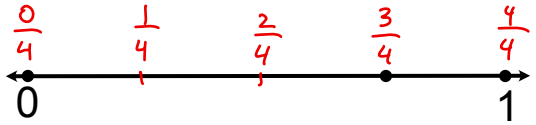
The missing pieces are $\frac{1}{3}$ and $\frac{1}{4}$. $\frac{1}{3} > \frac{1}{4}$.

Below is a number line with multiple labeled points. What number could each point on the number line represent? You'll need to eyeball and estimate your answer, but you'll probably get the best answer by trying to divide up the number line to determine the point.



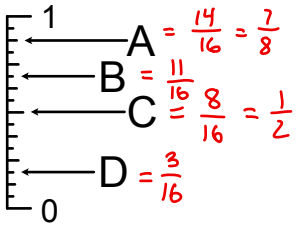




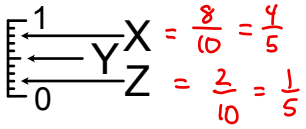


MEASUREMENT FRACTIONS

Inches are a unit of measure that usually gets broken up into 16 equal pieces. Below is a 1-inch ruler that has locations marked with letters A, B, C, and D. What fraction is represented by each letter?



Centimeters are a unit of measure that usually gets broken up into 10 equal pieces (called millimeters). Below is a 1-centimeter ruler that has locations marked with letters X, Y, and Z. What fraction is represented by each letter?



Y = 5/10 = 1/2

Bonus Thinking Puzzle!

What is a mathematician's favorite snake? Use the fractions to decode the answer.

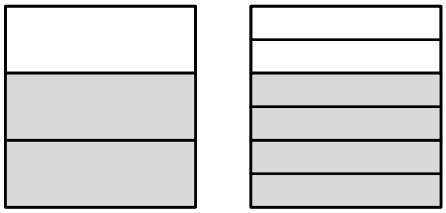
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
0/25	1/25	2/25	3/25	4/25	5/25	6/25	7/25	8/25	9/25	10/25	11/25	12/25	13/25	14/25	15/25	16/25	17/25	18/25	19/25	20/25	21/25	22/25	23/25	24/25	25/25

A	P	I	-	T	H	O	N
0/25	15/25	8/25		19/25	7/25	14/25	13/25

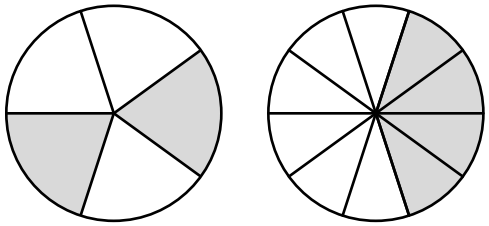
Mathematicians love the Greek letter π (pi).

EQUIVALENT FRACTIONS

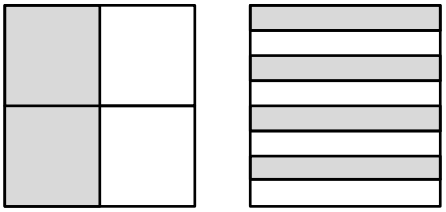
Each pair of figures show two shaded fractions. Write the fractions that are displayed and then write an equal sign = or not equal sign ≠ to show the relationship between the two fractions.



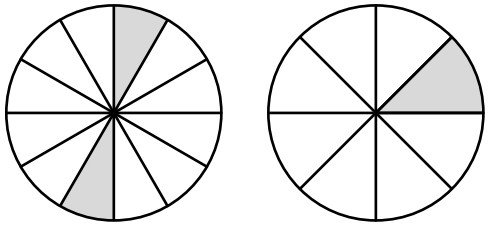
$\frac{2}{3} = \frac{4}{6}$



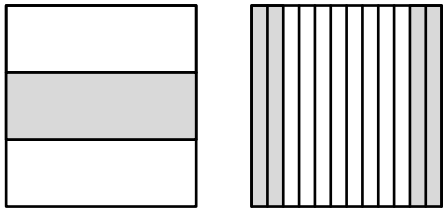
$\frac{2}{5} = \frac{4}{10}$



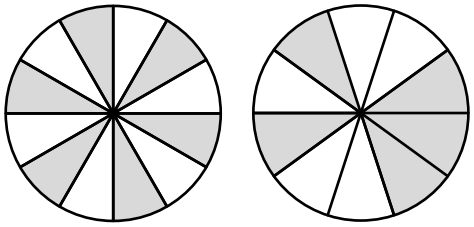
$\frac{2}{4} = \frac{4}{8}$



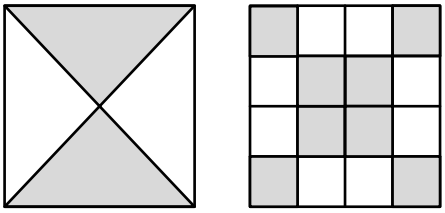
$\frac{2}{12} \neq \frac{1}{8}$



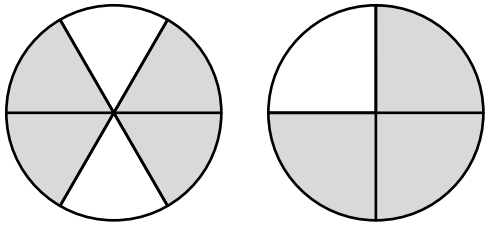
$\frac{1}{3} = \frac{4}{12}$



$\frac{6}{12} = \frac{5}{10}$



$\frac{2}{4} = \frac{8}{16}$



$\frac{4}{6} \neq \frac{3}{4}$

EQUIVALENT FRACTIONS

Complete each equivalent fraction below.

$\frac{40}{64} = \frac{5}{8}$ $\quad \frac{20}{45} = \frac{40}{90}$ $\quad \frac{3}{8} = \frac{12}{32}$ $\quad \frac{25}{55} = \frac{5}{11}$

$\frac{12}{56} = \frac{6}{28}$ $\quad \frac{6}{8} = \frac{30}{40}$ $\quad \frac{16}{36} = \frac{8}{18}$ $\quad \frac{3}{8} = \frac{24}{64}$

For each pair of fractions below, determine whether they are equal = or not equal ≠. *Note: you do not need to say which one is larger or smaller! Just check to see if they are equivalent.*

$\frac{8}{24} \neq \frac{9}{25}$ $\quad \frac{6}{32} \neq \frac{12}{16}$ $\quad \frac{14}{50} \neq \frac{21}{60}$ $\quad \frac{6}{11} = \frac{30}{55}$

$\frac{45}{54} = \frac{10}{12}$ $\quad \frac{21}{35} = \frac{3}{5}$ $\quad \frac{15}{33} = \frac{5}{11}$ $\quad \frac{4}{48} \neq \frac{10}{80}$

$\frac{36}{88} \neq \frac{10}{25}$ $\quad \frac{24}{36} = \frac{12}{18}$ $\quad \frac{8}{28} = \frac{4}{14}$ $\quad \frac{23}{29} \neq \frac{31}{41}$

$\frac{12}{24} = \frac{22}{44}$ $\quad \frac{14}{21} = \frac{2}{3}$ $\quad \frac{36}{40} = \frac{9}{10}$ $\quad \frac{20}{120} \neq \frac{6}{40}$

Gus says that the fractions $\frac{6}{9}$ and $\frac{10}{15}$ cannot be equal to each other because he keeps doubling the numbers starting from 9 or 15 but the two numbers never match. Is Gus right or wrong? Explain. Gus is wrong. Both numbers are equivalent to $\frac{2}{3}$. Gus's trick of doubling only works sometimes.