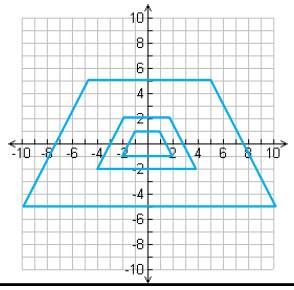
Warmup 4/18

1. **Inside your desk should be:**
   1. **A graphing sheet**
   2. **A dry erase marker**
   3. **An eraser**
2. Write down the three types of transformations we learned about.
3. From 1-10, rate your confidence level in how well you could do each type of transformation TODAY.

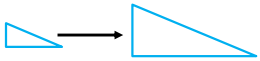
On your first graph:

1. Draw the trapezoid with vertices **(-1, 1), (1, 1), (2, -1), (-2, -1)**
2. Multiply both coordinates in each point by **2** and draw the new trapezoid.
3. Multiply both coordinates in each point (still of the original one) by **5** and draw the new trapezoid.



NEW VOCAB WORDS

- **Dilation** – A transformation that creates a figure that is the same shape but different sizes



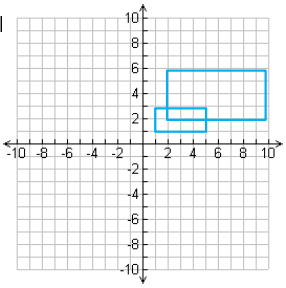
- **Scale Factor** – the number you are multiplying by in a dilation
  - Represented using the variable "**k**"

NEW VOCAB WORDS

- **How do I do a dilation? (centered at the origin):** Just multiply the x and y coordinates of each vertex by the scale factor (**k**)!

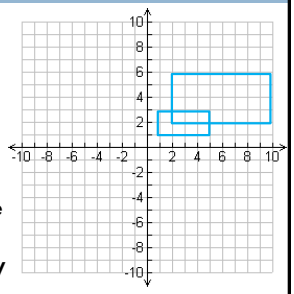
On your second graph:

1. Draw the rectangle with vertices **(1, 1); (1, 3); (5, 3); (5, 1)**
2. Perform a dilation with a scale factor of 2.



1. Find the length of the horizontal sides of both rectangles. What do you notice?
2. Find the length of the vertical sides of both rectangles. What do you notice?

- ***When you multiply the coordinates, the side lengths will automatically multiply as well!



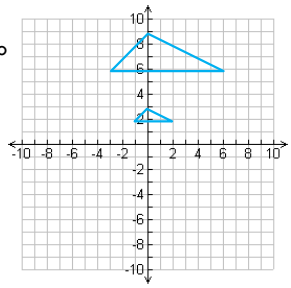
On your third graph:

1. Draw the triangle with vertices **(-3, 6); (0, 9); (6, 6)**
2. Perform a dilation with a scale factor of $\frac{1}{3}$.

Draw the triangle with vertices **(-3, 6); (0, 9); (6, 6)**

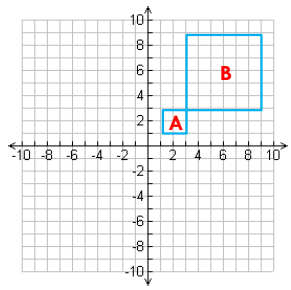
Perform a dilation with a scale factor of $\frac{1}{3}$.

1. Measure the bottom sides of each triangle. What do you notice?



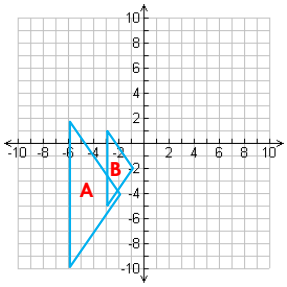
What was the scale factor???
(Figure A is the preimage. B is the image)

k = 3



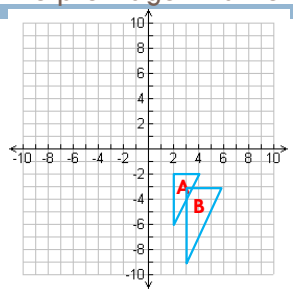
What was the scale factor???
(Figure A is the preimage. B is the image)

k = ½



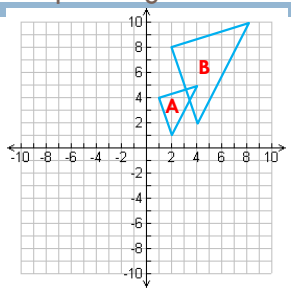
What was the scale factor???
(Figure A is the preimage. B is the image)

k = 1.5



What was the scale factor???
(Figure A is the preimage. B is the image)

k = 2



Scale Factor Formula

- **Original x (scale factor) = Image**
- **Therefore:**
- $Scale\ Factor = \frac{side\ length\ of\ IMAGE}{side\ length\ of\ ORIGINAL}$

PROBABILITY!!!

Fast food!

- Milton is getting a combo meal at Burgers-R-Us. For his sandwich, he can choose a hamburger, cheeseburger, or chicken sandwich. He can choose between regular fries or curly fries. For his drink, he may choose Coke, Diet Coke, Sprite, or Dr. Pepper. How many different possibilities does Milton have for his combo meal? Show your work using a tree diagram, table, or list.
- Suppose Milton chooses his entire combo meal randomly. What is the probability he will end up with a Cheeseburger, curly fries, and a Sprite?

Flipping coins!

- If you flip a coin three times, what is the probability you will get heads each time? $\frac{1}{2}\cdot\frac{1}{2}\cdot\frac{1}{2}=\frac{1}{8}$
- What is the probability you will get one head and two tails?

  HTT, THT, TTH: $\frac{3}{8}$

Dice rolling

- When you roll two dice, how many possibilities are there for the total?
- Are each of these totals equally likely? Why or why not?
- If you roll two dice, what is the **probability** you will get a 12? $\frac{1}{36}$
- What is the probability you will get a 7? $\frac{6}{36}\rightarrow\frac{1}{6}$

- You flip a coin and roll a dice. What is the probability you will get **heads** and a number higher than 4?

$$\frac{1}{2} \cdot \frac{2}{6} = \frac{2}{12} \rightarrow \frac{1}{6}$$

Guessing on a Quiz

- You take a 5-question multiple choice test. Each question has 4 choices. You did not study at all, so you guess randomly. What is the probability that you will get all 5 questions correct?

$$\frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4} = \frac{1}{1024}$$