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Make sure your desk has: ONE whiteboard, ONE graphing sheet, ONE marker, ONE eraser

(You also need a calculator!)

- 1. (On your graphing sheet) Draw the rectangle with vertices (1, 1); (1, 3); (5, 3); (5, 1).
- 2. (On your graphing sheet) Perform a dilation with a scale factor of 2 and graph the new rectangle.
- **3. (On your warmup page)** Write down the new coordinates you got.
- 4. (#4 and 5 are on the next page!)

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

k = 3



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

 $k = \frac{1}{2}$ or 0.5



Dice rolling

- When you roll TWO dice, how many possible c are there? **36**
- How many possibilities are there for the total?

11 (Any number from 2 to 12)

• Are each of these totals equally likely? Why or why not?

No; there are more combinations to get some totals than others



		Outcome of First Die								
		1	2	3	4	5	6			
Outcome of Second Die	1	2	3	4	5	6	7			
	2	3	4	5	6	7	8			
	3	4	5	6	7	8	9			
	4	5	6	7	8	9	10			
	5	6	7	8	9	10	11			
	6	7	8	9	10	11	12			





Dice rolling

If you roll two dice, what is the probability that the first die is a 3 and the second die is a 4?
1

 $\begin{array}{r} \overline{6} \quad \overline{6} \quad \overline{36} \\ \overline{6} \quad \overline{36} \\ \overline{36} \\ \overline{36} \\ \overline{36} \\ \overline{36} \\ \overline{76} \\ \overline{$

• What is the probability you will get a 7?

If you roll two dice, what is the probability you will get a 12?
only 6, 6
36

		Outcome of First Die								
		1	2	3	4	5	6			
Outcome of Second Die	1	2	3	4	5	6	7			
	2	3	4	5	6	7	8			
	3	4	5	6	7	8	9			
	4	5	6	7	8	9	10			
	5	6	7	8	9	10	11			
	6	7	8	9	10	11	12			

 You flip a coin and roll a die. What is the probability you will get heads <u>and</u> 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?

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

Drawing marbles from a bag

- There is a bag with 6 red marbles, 4 blue marbles, and 2 green marbles.
- If you pick a random marble, what is the probability it will be green? $\frac{2}{12} \rightarrow \frac{1}{6}$
- You draw two marbles from the bag. You put the first marble back before you draw the second one. What is the probability both marbles will be blue? $4 \quad 4 \quad 4 \quad 12 \quad 12 \quad 3 \quad 3 \quad 9$

You draw two marbles from the bag WITHOUT putting the first one back. What is the probability both marbles will be blue?
4 3 12 1

Drawing cards

- Every deck of cards has:
 - 4 suits; 13 of each suit (spades, hearts, diamonds, clubs)
 - 13 "ranks"; 4 of each rank (2 through 9, Jack, Queen, King, Ace)
- If you draw one card, what is the probability of drawing...
- A spade? $\frac{1}{4}$

• A king?
$$\frac{4}{52} \rightarrow \frac{1}{13}$$

• The 3 of diamonds? $\frac{1}{52}$

Drawing cards

• You draw one card, put it back in the deck, then draw another card. What is the probability they are both hearts?

 $\frac{1}{4} \cdot \frac{1}{4} = \frac{1}{16} = .0625 \text{ or } 6.25\%$

• You draw two cards from the deck without putting the first one back. What is the probability they are both hearts?

 $\frac{13}{52} \cdot \frac{12}{51} = \frac{156}{2652} \approx .0588 \text{ or } 5.88\%$

• You draw three cards from the deck. What is probability they are all aces?

 $\frac{4}{52} \cdot \frac{3}{51} \cdot \frac{2}{50} = \frac{24}{132,600} = \frac{1}{5525} \approx .00018 \text{ or } 0.01\%$