

# Warm-Up

## Get out your homework



1. The point  $S(x, y) = (y, -x)$ . What transformation is  $S$ ?



a.  $R_{270}$

b.  $R_{90}$

c.  $r_{x\text{-axis}}$

d.  $R_{180}$



2. What is the value of  $x$

$$\frac{3\sqrt{9+x}}{3} = \frac{15}{3} \quad (\sqrt{9+x})^2 = (5)^2$$

$$\begin{array}{r} 9+x = 25 \\ -9 \quad -9 \\ \hline \end{array}$$

3. How many lines of symmetry does a regular octagon have?

$$\boxed{8 \quad \frac{360}{n} =}$$

$$\boxed{x = 16}$$

Agenda:

1) "How do we dilate geometric figures?" - Guided Notes.

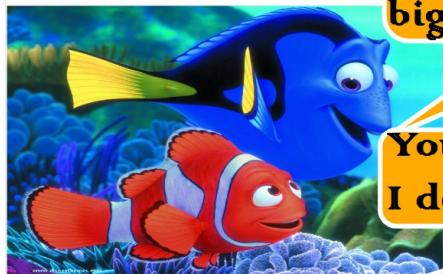
2) Detective Challenge





Dilations

**Dilation**-- is a transformation that produces an image that is the same shape as the original, but is a different size. A dilation **STRETCHES** or **SHRINKS** the original figure



I feel like the ocean is ten times bigger than yesterday

You know Dora  
I do not understand your logic!!!

**Scale Factor**-- is the ratio that determines how much the figure stretches or shrinks.



**Scale Factor** =  $\frac{\text{length of image side}}{\text{length of preimage side}}$

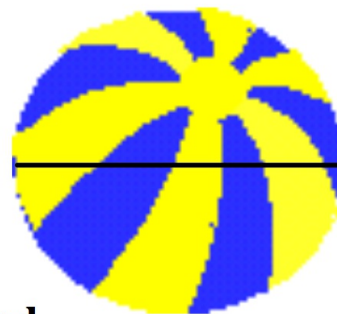


**First Look at Dilations!!!!**

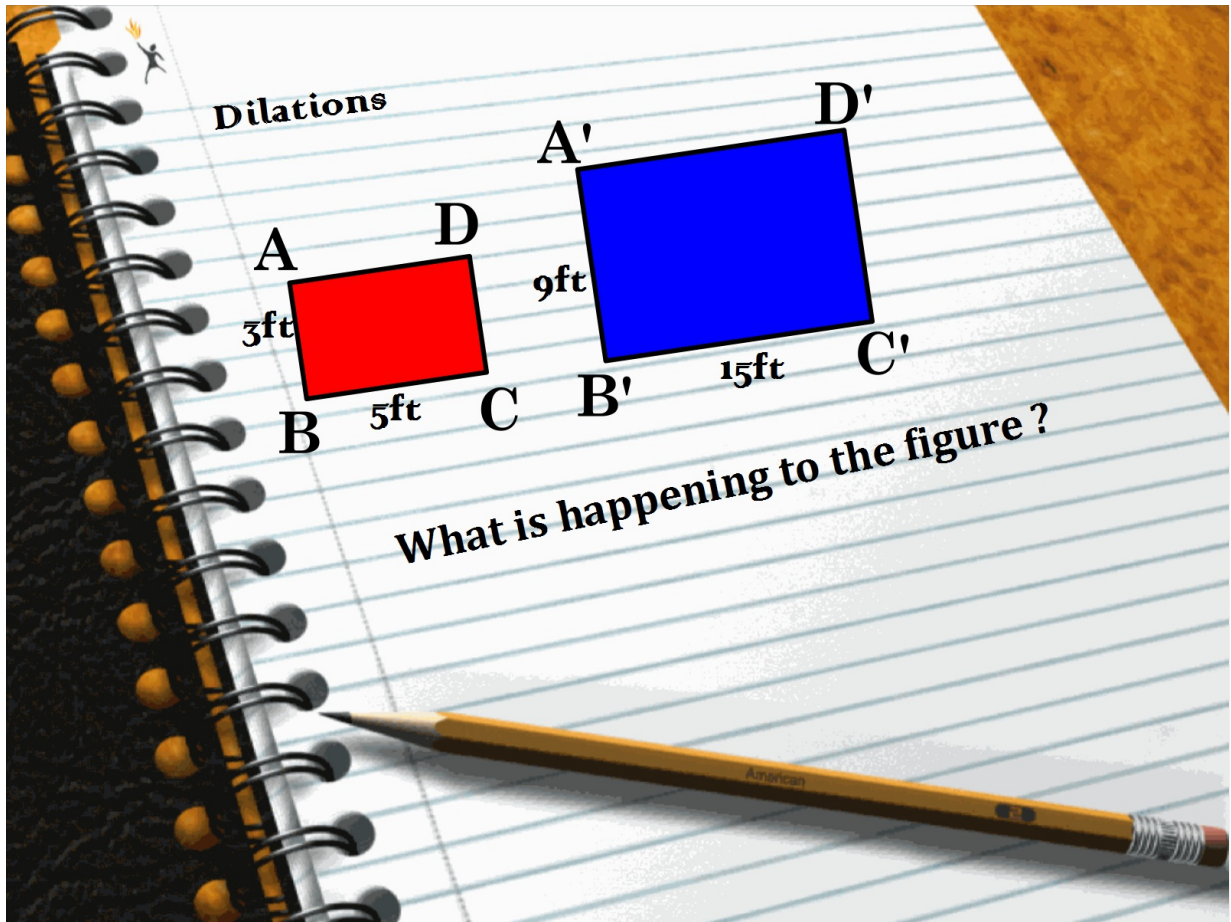
$$\frac{12}{3} = 4$$

The Beach ball has a diameter of 12 in.

The beach ball has a diameter of 3 in.



What Happened to the beach ball?

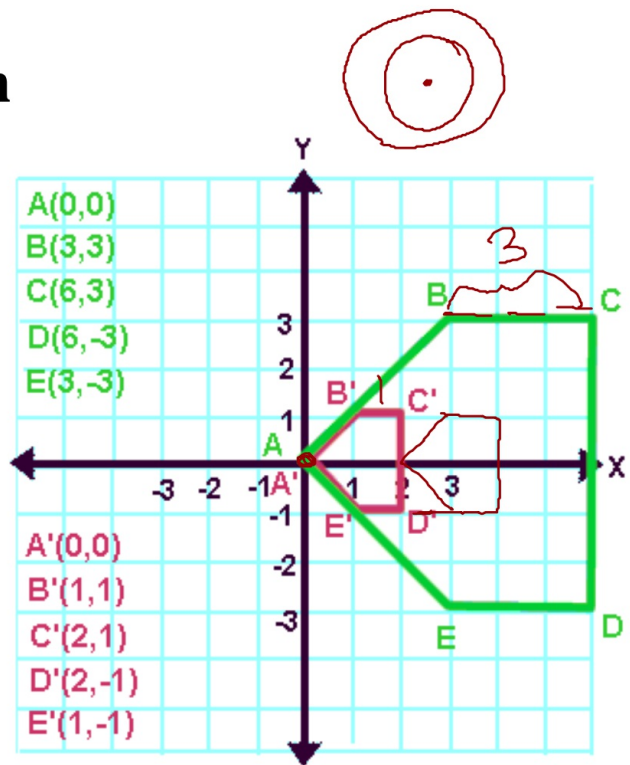


## Center of Dilation

1. What is the scale factor?

$$\frac{1}{3}$$

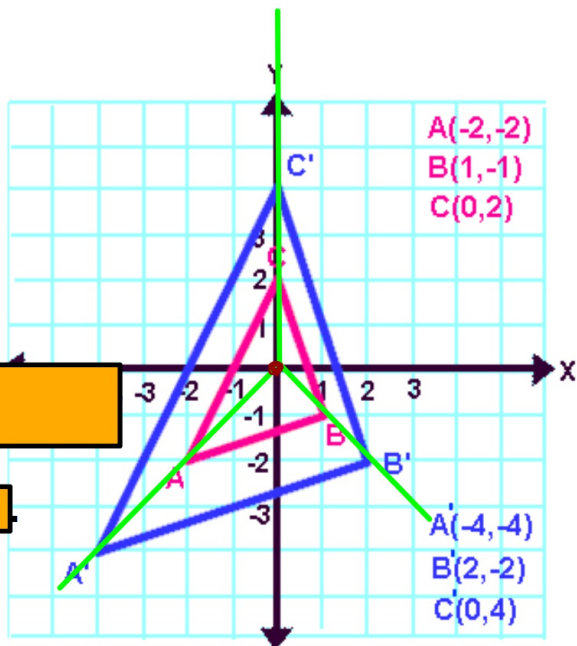
2. What is the Center of Dilation of this figure?  $(0,0)$



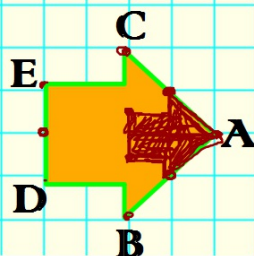
# 3-2-1

3 things you notice:

- I notice that...
- The triangle...
- I can see that...



**A closer look!!!!!!!**

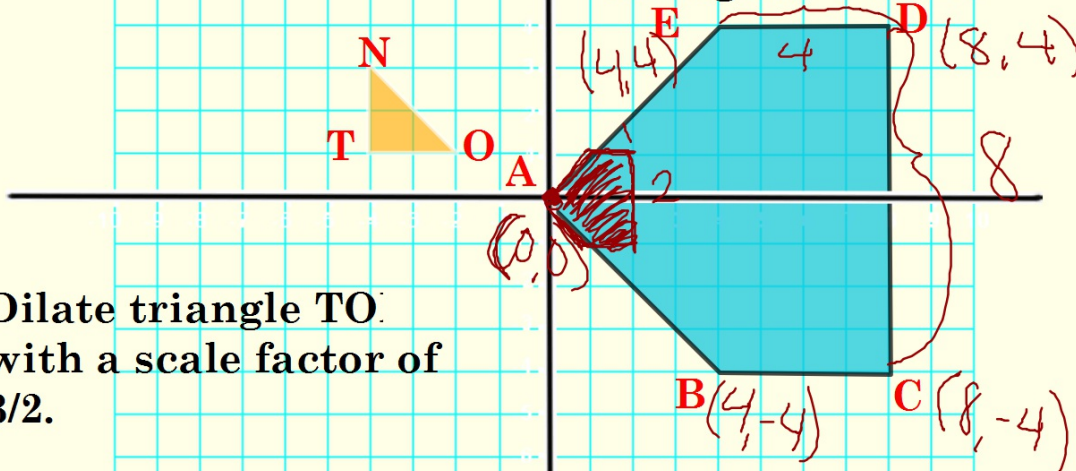


- $A(6,3)$
- $B(4,1)$
- $C(4,5)$
- $D(2,2)$
- $E(2,4)$

Use a scale factor of  $1/2$  to expand this figure. Use  $(6,3)$  as the center of dilation.

Practice, Practice, Practice!!

Use a scale factor of  $\frac{1}{4}$  and center of  $(0,0)$  to dilate the figure ABCDE

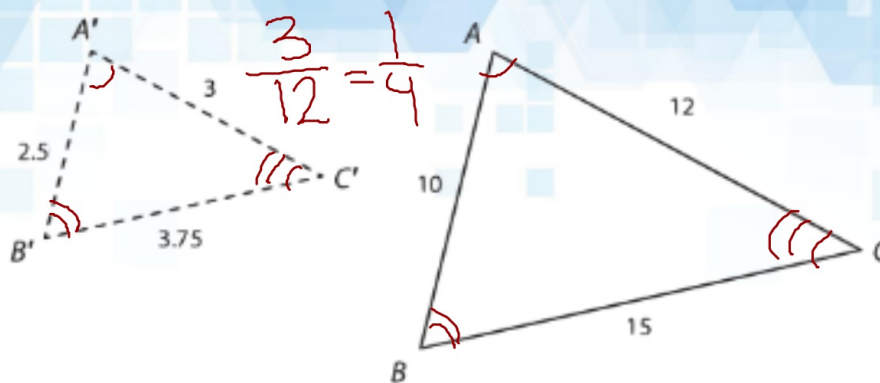


Dilate triangle TO with a scale factor of  $\frac{3}{2}$ .

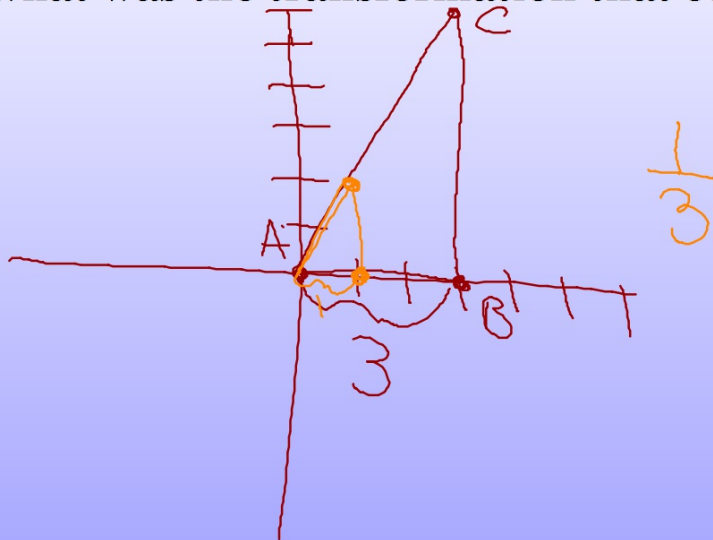
### Guided Practice

#### Example 3

The following transformation represents a dilation. What is the scale factor? Does this indicate enlargement, reduction, or congruence?



If triangle  $A(0,0)$   $B(3,0)$   $C(3,6)$  transformed to  $A'(0,0)$   $B'(1,0)$   $C'(1,2)$ , what was the transformation that occurred?



**Congruency - Exactly equal in size and shape.**  
**Congruent sides or segment have the exact same length. Congruent angles have the exact same measure. Congruent geometric figures have congruent sides, angles, and faces.**



**Isometric Transformation: An isometric transformation is a transformation that preserves the distances and angles between a pre-image and its image. Put simply, in an isometric transformation the image is exactly the same size and shape as its pre-image.**



## Transformation Detective Work

### Supplies:

Scissors

Glue

Markers

Rulers

1. Get in groups of 3-4!
2. Create 5 sections on construction paper.
3. Read the clues together as a group.
4. Organize each clues for each transformation into different sections
5. Using the given clues, figure out each transformation that occurred by:
  - writing down the coordinates of the figure
  - graphing each figure after each transformation

### Expectations:

- Work as a group.
- Music volume > Talking volume.
- 30 minutes.

