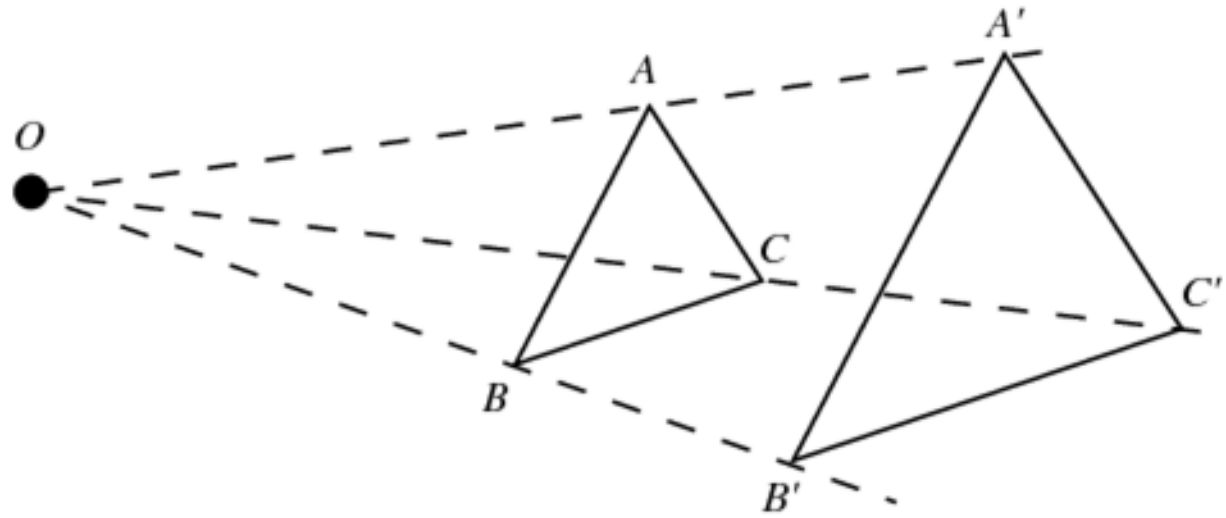
New seats today…

You may sit where you wish

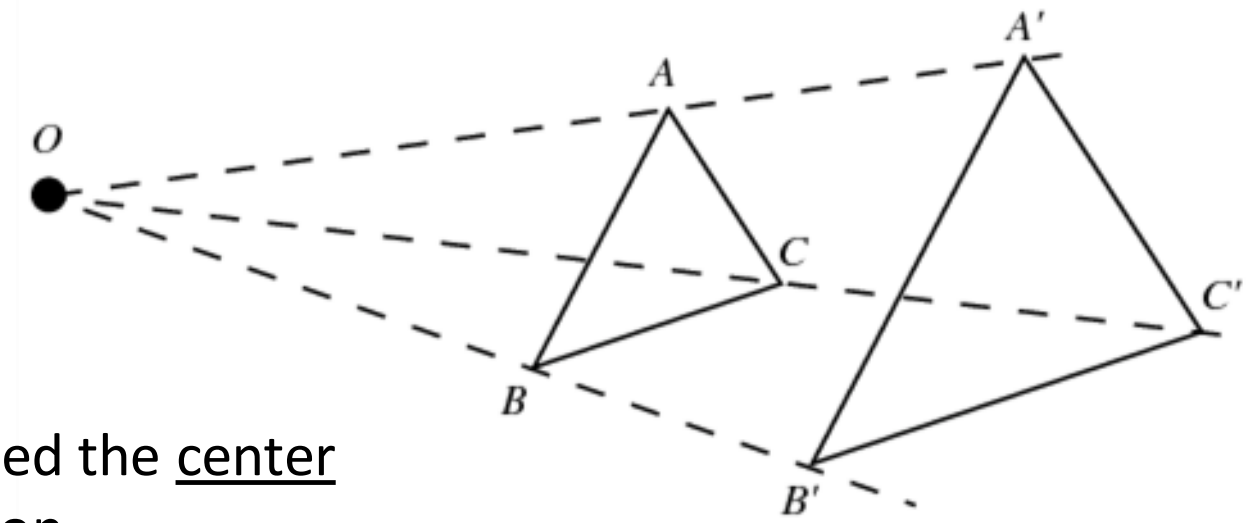
**You will need a handout and a ruler

DILATIONS

This transformation is called a dilation.



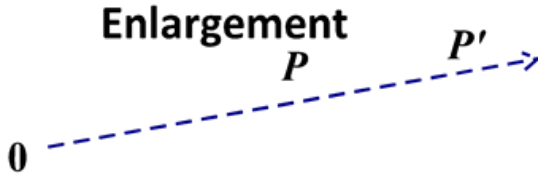
- Lengths are different, but they are PROPORTIONAL
- Angle measures are the SAME
- Orientation (order that points are read) is the SAME



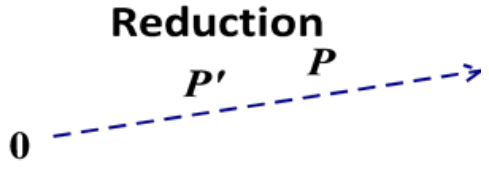
O is called the center of dilation

The lengths change, but they are proportional. The scale factor is the number that each pre-image length is multiplied by to get the image length.

$$k = \frac{\text{distance from center to IMAGE}}{\text{distance from center to PRE-IMAGE}} = \frac{\text{length in IMAGE}}{\text{length in PRE-IMAGE}}$$



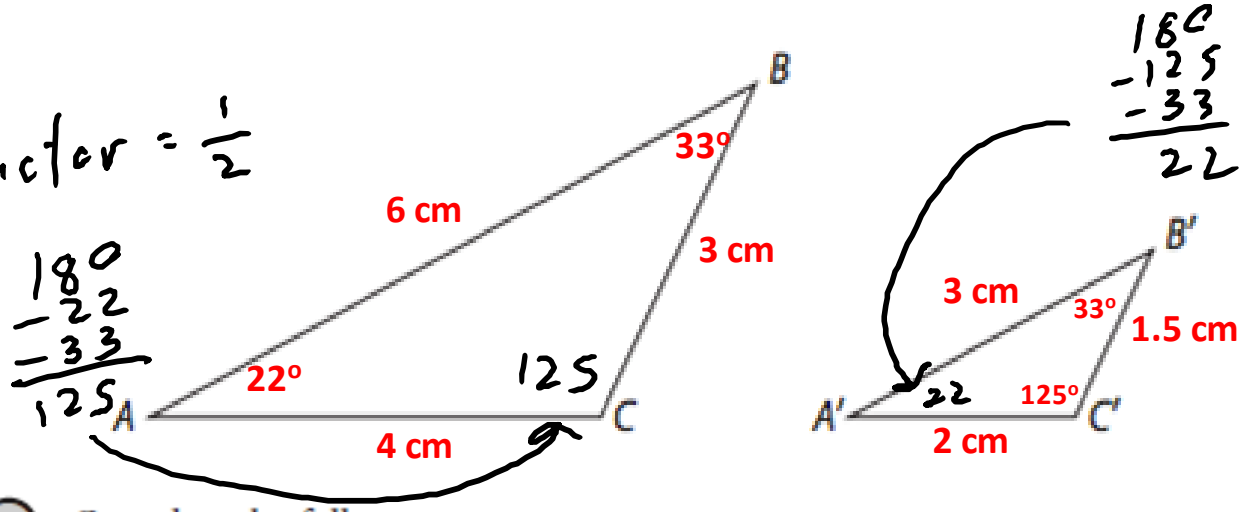
k is greater than 1



k is greater than 0 but less than 1

Use $\triangle ABC$ and its image $\triangle A'B'C'$ after a dilation to answer the following questions.

scale factor = $\frac{1}{2}$



C Complete the following ratios

side fractions are equal

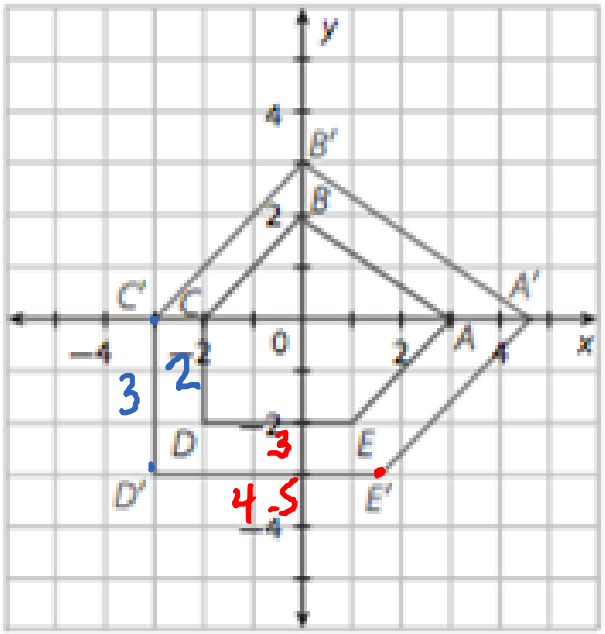
$\frac{A'B'}{AB} = \frac{3}{6} = \frac{1}{2}$ $\quad \frac{A'C'}{AC} = \frac{2}{4} = \frac{1}{2}$ $\quad \frac{B'C'}{BC} = \frac{1.5}{3} = \frac{1}{2}$

angles are equal

$m\angle A = 22$ $\quad m\angle B = 33$ $\quad m\angle C = 125$

$m\angle A' = 22$ $\quad m\angle B' = 33$ $\quad m\angle C' = 125$

Ex. Determine if this is a dilation. If it is, identify as enlargement or reduction and find the scale factor.



→ are side fractions equal?

$$\frac{\text{image}}{\text{preimage}} = \frac{4.5}{3} = \frac{3}{2}$$

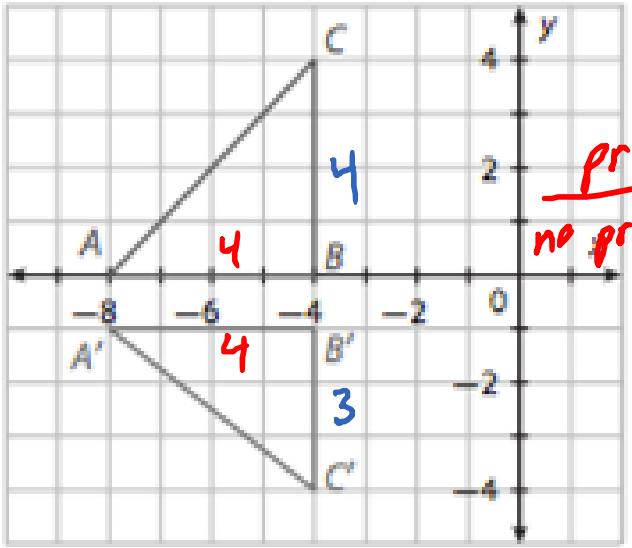
1.5

dilation? yes

enlargement

scale factor = 1.5

Ex. Determine if this is a dilation. If it is, identify as enlargement or reduction and find the scale factor.

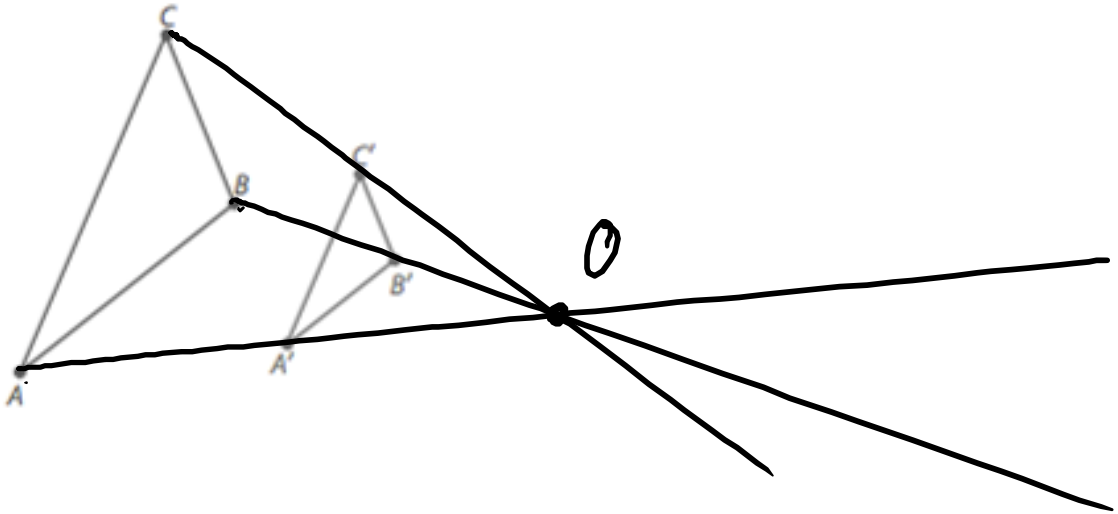


are the side fractions equal?

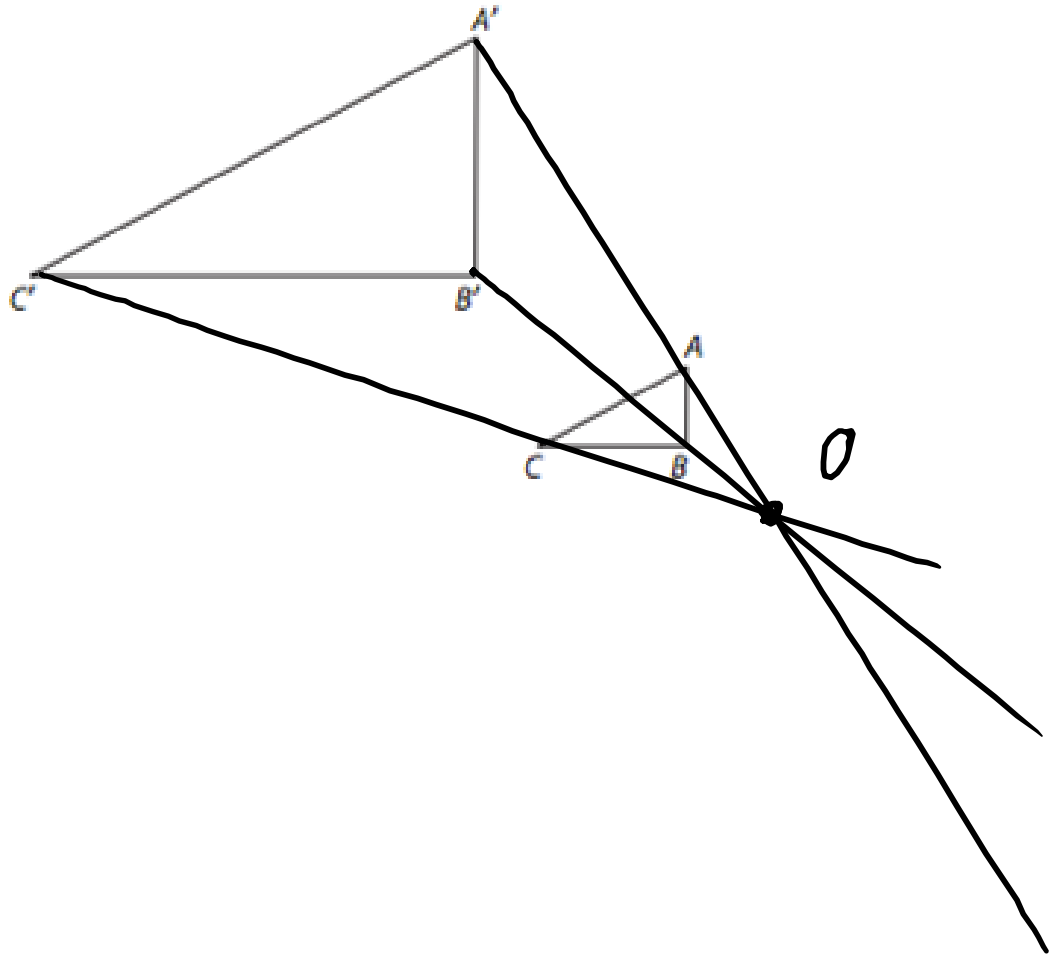
$\frac{\text{primes}}{\text{no primes}}\ \frac{\text{image}}{\text{preimage}} = \frac{4}{4} \neq \frac{3}{4}$

not a dilation

Ex. Find the center of dilation and scale factor.

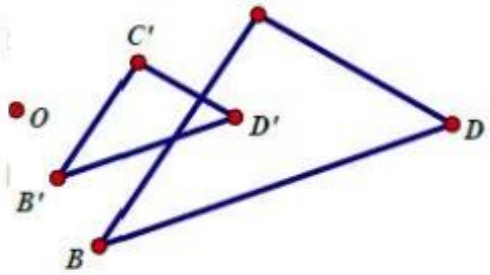


Ex. Find the center of dilation and scale factor.



1. Determine if each dilation is a REDUCTION or ENLARGEMENT, then circle your answer.

a) reduction



Reduction or Enlargement

b) enlargement

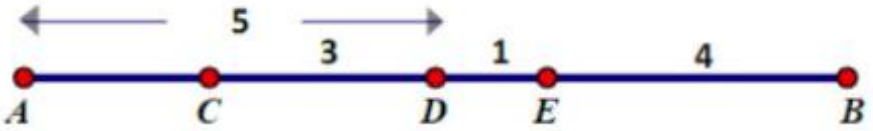
Reduction or Enlargement

c) Scale Factor of 2/3

reduction

Reduction or Enlargement

2. Determine the ratio. (Reduce the ratio)



a) CD : DE _____ : _____ b) EB : BD _____ : _____

3. Answer the following questions about the dilation centered at O with a scale factor of 3.

OA = 3, OB = 5 and AB = 4

a) A'B' = 12

b) OB' = 15