

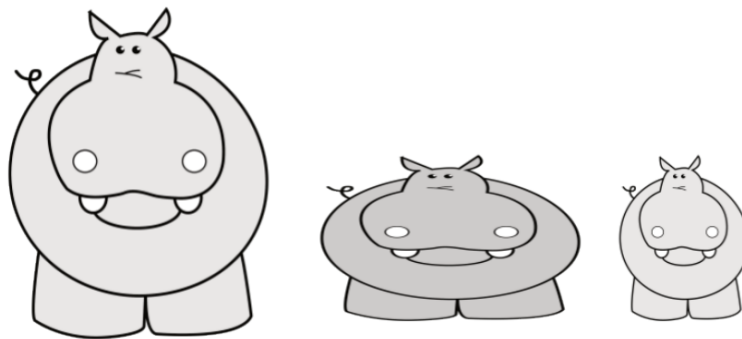
Lesson 3.01

Scaling Figures

Geometry GT

Analyze

Joaquin took a picture of a hippo and then edited it.



Which is the distorted image? How can you tell? Is there anything about the pictures you could measure to test whether there's been a distortion?

Definitions

Scale factor: the factor by which every length in an original figure is multiplied when you make a scaled copy

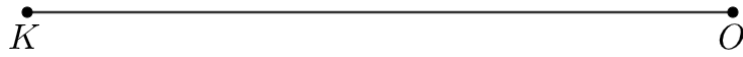
Dilation: a transformation that takes a point A along the ray \overrightarrow{PA} , where point P is the center of the dilation, to another point whose distance is k times farther away from P than A is

Explore

Measure the length of \overline{CH} , then dilate H using C as the center and a scale factor of 3.



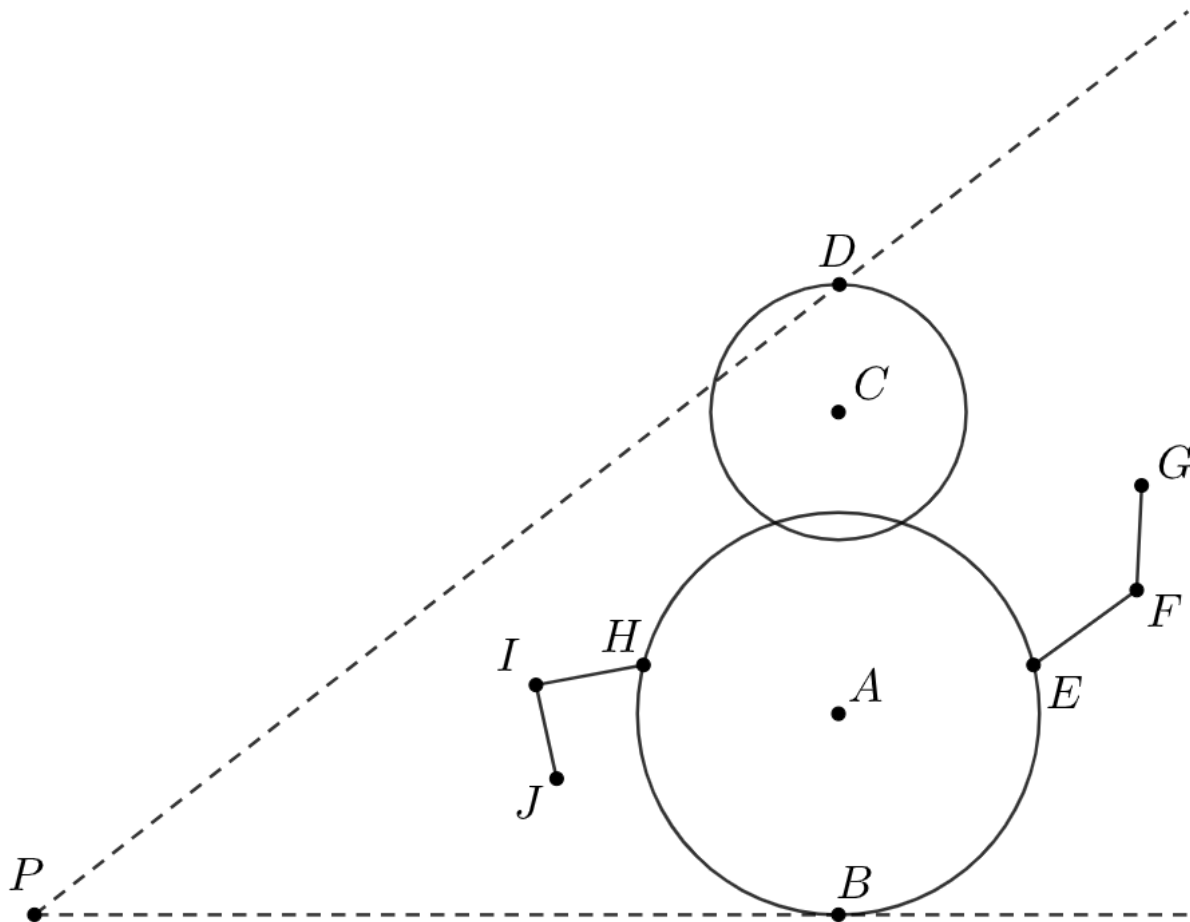
Measure the length of \overline{KO} , then dilate K using O as the center and a scale factor of $\frac{3}{4}$.



What difference do you notice between the two dilations?

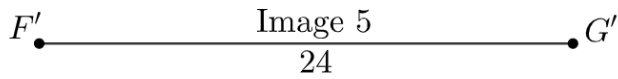
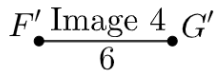
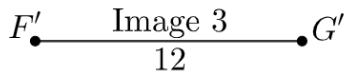
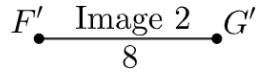
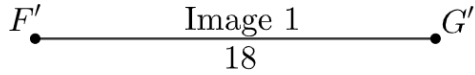
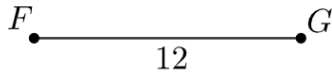
Discuss

Dilate the figure using center P and scale factor $\frac{1}{3}$.



Demonstrate

Match the image to the scale factor from \overline{FG} to $\overline{F'G'}$.

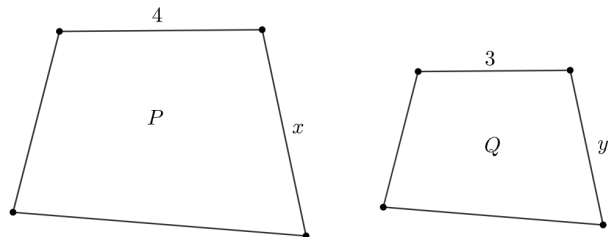


- A. 1
- B. $\frac{3}{2}$
- C. 2
- D. $\frac{2}{3}$
- E. $\frac{1}{2}$

Practice

1. Polygon Q is a scaled copy of polygon P .

A. If the value of x is 6, what is the value of y ?

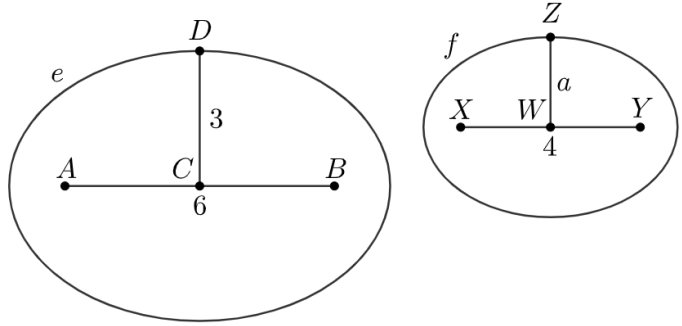


B. What is the scale factor?

2. Figure f is a scaled copy of figure e .

We know:

- $AB = 6$
- $CD = 3$
- $XY = 4$
- $ZW = a$



Select **all** true equations.

A. $\frac{6}{3} = \frac{4}{a}$

B. $\frac{6}{4} = \frac{3}{a}$

C. $\frac{3}{4} = \frac{6}{a}$

D. $\frac{6}{3} = \frac{a}{4}$

E. $\frac{6}{4} = \frac{a}{3}$

F. $\frac{3}{4} = \frac{a}{6}$

3. Solve each equation.

A. $\frac{2}{5} = \frac{x}{15}$

B. $\frac{4}{3} = \frac{x}{7}$

C. $\frac{7}{5} = \frac{28}{x}$

D. $\frac{11}{4} = \frac{5}{x}$