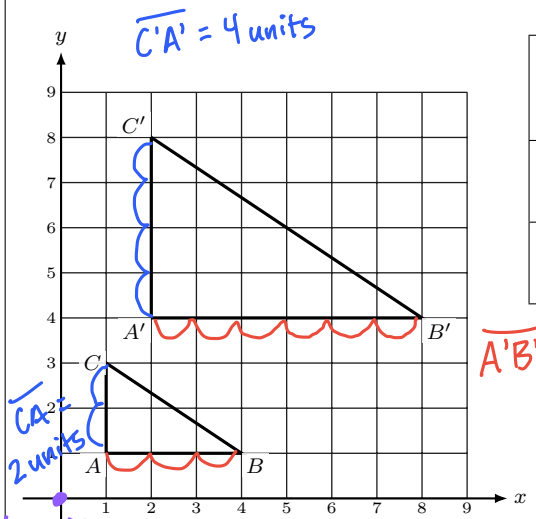
# Artifact 5 – Dilations and Similar Figures

Driving Question: What changes, and what stays the same, when a figure is resized?

## Example 1




$\overline{C'A'} = 4$ units

$\overline{CA} = 2$ units

$\overline{AB} = 3$ units

$\overline{A'B'} = 6$ units

| | Pre-image length | Image length | Image ÷ pre-image |
|---|---|---|---|
| $\overline{AB}$ | 3 units | 6 units | $\frac{6}{3} = 2$ |
| $\overline{CA}$ | 2 units | 4 units | $\frac{4}{2} = 2$ |

$$\frac{\text{image}}{\text{pre-image}} = \frac{A'B'}{AB} = \frac{6}{3} = 2$$

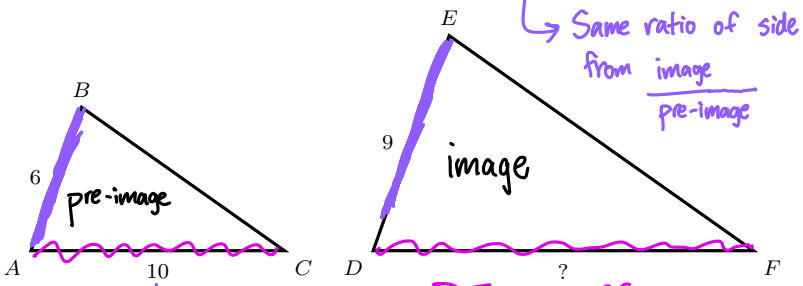
$$\frac{\text{image}}{\text{pre-image}} = \frac{C'A'}{CA} = \frac{4}{2} = 2$$

Origin is center of dilation

## Example 2

Corresponding sides are proportional!

Triangle $ABC$ and triangle $DEF$ are similar. Lengths are in centimeters.




↳ Same ratio of side lengths from $\frac{\text{image}}{\text{pre-image}}$

$$\frac{DE}{AB} = \frac{9}{6} = \frac{DF}{AC} = \frac{x}{10}$$

$\frac{9}{6} = \frac{15}{10}$ ✓

$$\frac{9}{6} \times = \frac{x}{10} \rightarrow \frac{6x}{6} = \frac{90}{6}$$

$x = 15$

## Vocabulary

- Dilation ✓
- Center of dilation ✓
- Scale factor ✓
- Enlargement ✓
- Reduction ✓
- Similar figures ✓
- Proportional ✓
- Ratio ✓

*Same corresponding side length ratio → Similar figures

*That ratio is the Scale factor

Side lengths are all x 2

K=2

## Notes to Forgetful Self

*Dilations produce similar figures

↳ equal corresponding angles

↳ proportional corresponding side lengths

*ratios between corresponding side lengths are equal.

↳ Could be an enlargement (gets bigger) or reduction (gets smaller)