Name: _____

Date: _____ Per: ____

IM2 - (7.2b Notes) Similarity: Scale Factor

Scale Factor - The common ratio between all pairs of proportional sides.

- To Determine Image Side Length - Multiply the length of a side of the pre-image (original figure) by the scale factor to determine the length of the corresponding side of the image (new figure)

- To Determine Scale Factor – Set up corresponding ratios such that the side lengths are written and simplified by the fraction: $\frac{Image}{Pre-Image}$

  - Ex. Dilate Larger: $What\ is\ the\ scale\ factor\ from\ \Delta ABC \sim \Delta DEF?$

Large

Small

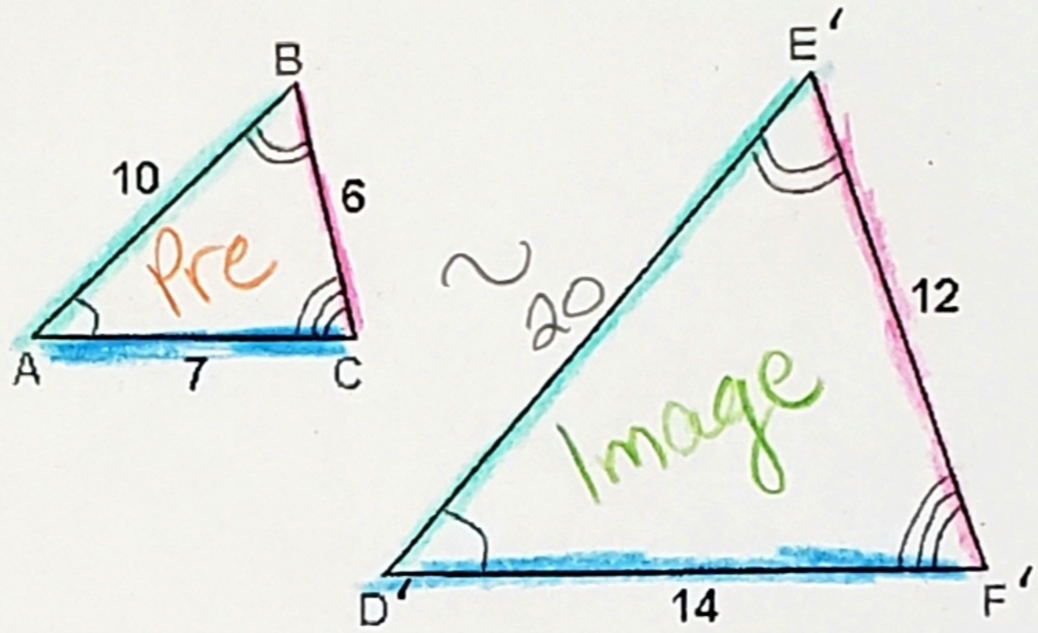
$$\frac{\overline{DE}}{\overline{AB}} = \frac{\overline{EF}}{\overline{BC}} = \frac{\overline{FD}}{\overline{CA}}$$

left Right Bottom

$$\frac{\overline{DE}}{10} = \frac{12}{6} = \frac{14}{7}$$

$$2 = 2 = 2$$

$\therefore Scale\ Factor: 2$



  - Ex. Dilate Smaller: $What\ is\ the\ scale\ factor\ from\ \Delta DEF \sim \Delta ABC?$

Small

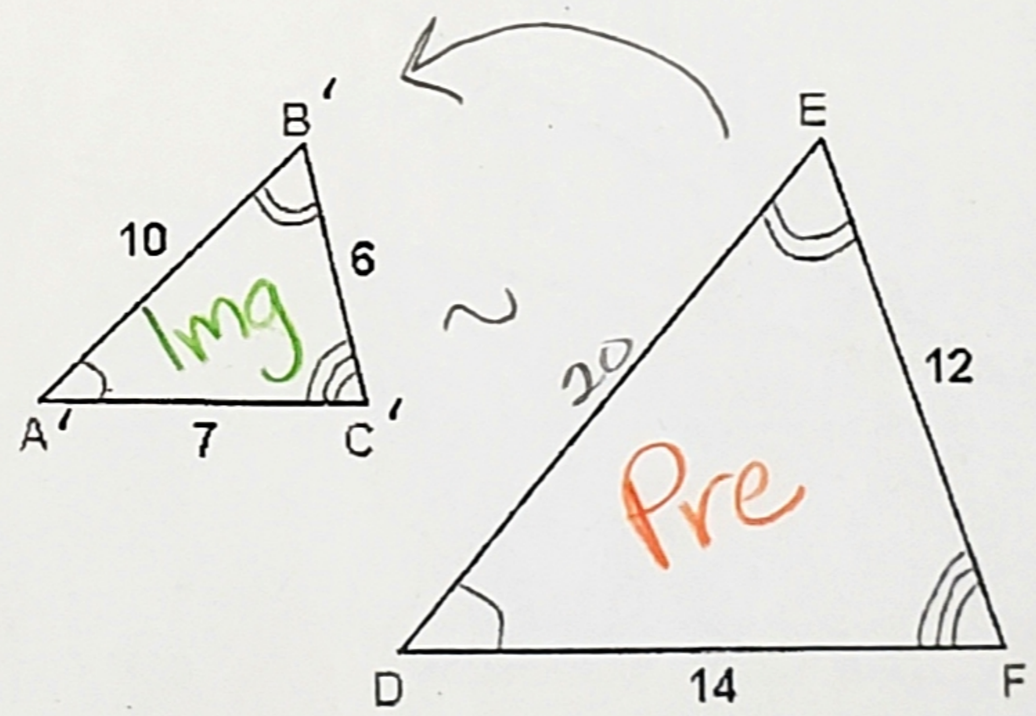
Large

$$\frac{\overline{AB}}{\overline{DE}} = \frac{\overline{BC}}{\overline{EF}} = \frac{\overline{CA}}{\overline{FD}}$$

$$\frac{10}{\overline{DE}} = \frac{6}{12} = \frac{7}{14}$$

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

$\therefore Scale\ Factor: \frac{1}{2}$

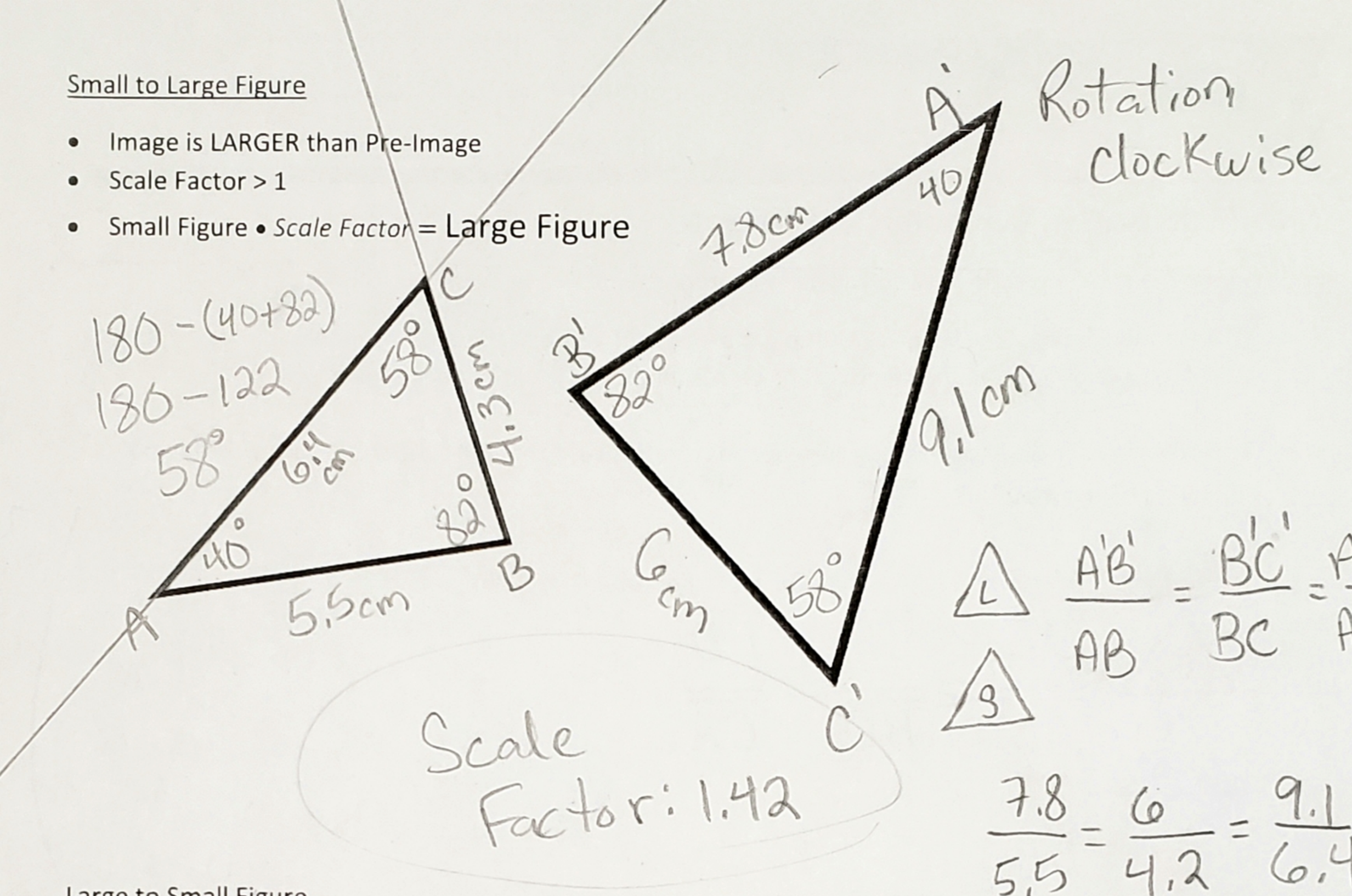


No Bar: = length

$\frac{2}{1}\frac{1}{2}(DE) = 10\left(\frac{2}{1}\right) \Rightarrow DE = 20$

Small to Large Figure

- Image is LARGER than Pre-Image
- Scale Factor > 1
- Small Figure • *Scale Factor* = Large Figure



Large to Small Figure

- Image is SMALLER than Pre-Image
- 0 < Scale Factor < 1
- Large Figure • *Scale Factor* = Small Figure