LAUNCH:

Read and record the two definitions for similar
p.325

Definitions

- Two figures are similar if you can rotate and/or flip one of them so that you can dilate it onto the other.
- Two figures are similar if one is congruent to a dilation of the other.

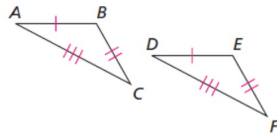---

4.14 Similar Figures

Objective:
- Identify corresponding parts of similar triangles
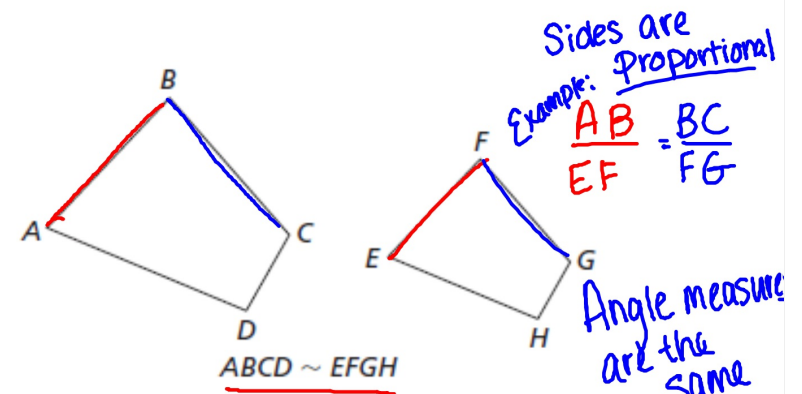
$\cong$ $\sim$

Developing Habits of Mind

Consider the converse. If two figures are congruent, are they similar? If two figures are similar, are they congruent?

If the two congruent figures below are similar, then you must be able to apply a scale factor to one of them and produce the other.

In this case, a scale factor of 1 applied to $\triangle ABC$ will produce $\triangle DEF$. But here are two similar figures that are obviously not congruent.
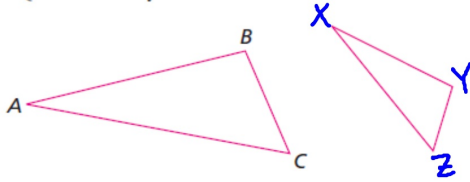

$ABCD \sim EFGH$

This is read as ABCD "is similar to" EFGH

Similar ~ means has the same shape

Sides are Proportional
Example: $\dfrac{AB}{EF} = \dfrac{BC}{FG}$

Angle measures are the same
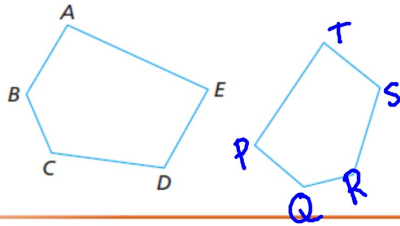example: $m\angle A = m\angle E$

For You to Do

$\triangle ABC \sim \triangle XYZ$ and $ABCDE \sim PQRST$. Copy the figures. Label the vertices of $\triangle XYZ$ and $PQRST$ correctly.
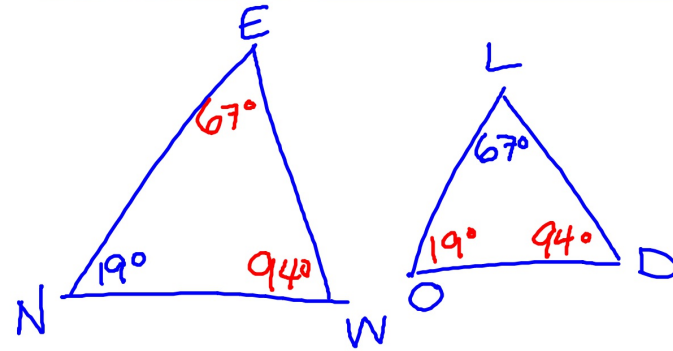
3.

4.

For You to Do

5. Suppose that $\triangle NEW \sim \triangle OLD$. If $m\angle N = 19°$ and $m\angle L = 67°$, find the measures of the other angles.
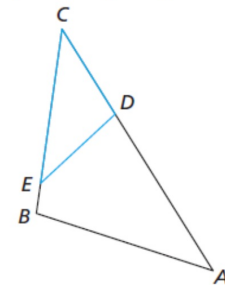

On Your Own

Homework: p.328 (6-8)

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On Your Own

6. In the figure, $\triangle ABC \sim \triangle CDE$.

Decide whether each statement is correct or incorrect.

a. $\triangle ABC \sim \triangle DEC$
b. $\triangle BCA \sim \triangle DEC$
c. $\triangle BAC \sim \triangle DEC$
d. $\triangle CAB \sim \triangle ECD$
e. $\triangle CBA \sim \triangle ECD$
f. $\triangle CBA \sim \triangle CDE$

7. $\triangle QRS \sim \triangle VUT$.

Decide whether each statement is correct or incorrect.
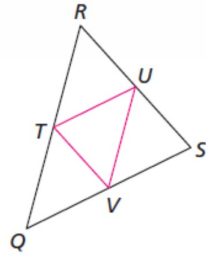
a. $\dfrac{QR}{TU} = \dfrac{SR}{TV}$ b. $\dfrac{QR}{SR} = \dfrac{TU}{TV}$

c. $\dfrac{QR}{QS} = \dfrac{UV}{TV}$ d. $\dfrac{QT}{QV} = \dfrac{RT}{TU}$

e. $\dfrac{QR}{TV} = \dfrac{SR}{TU}$ f. $\dfrac{QS}{VT} = \dfrac{RS}{UT}$

8. $\triangle CAT \sim \triangle DOT$.

Complete each statement.

a. $\angle C \cong \underline{\ ?\ }$ b. $\angle CTA \cong \underline{\ ?\ }$

c. $\angle DTO \cong \underline{\ ?\ }$ d. $\angle A \cong \underline{\ ?\ }$

e. $\angle D \cong \underline{\ ?\ }$ f. $\angle O \cong \underline{\ ?\ }$