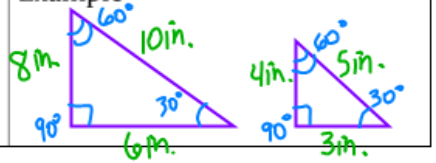
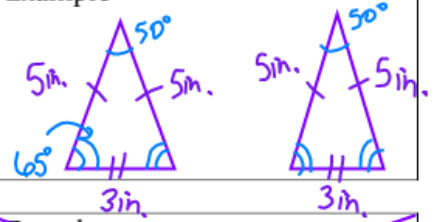
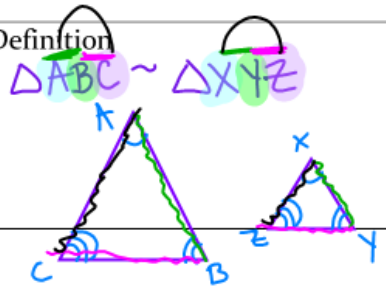
Lesson 4-3

similar figures ~	Decode Si·mi·lar fig·ures
Definition Same relative shape BUT different sizes	Example 

congruent figures ≅	Decode con·gru·ent fig·ures
Definition Same shape AND same size	Example 

corresponding sides/angles	Decode ~~~~
Definition $\triangle ABC \sim \triangle XYZ$  	Example $\angle A \cong \angle X$ $\angle B \cong \angle Y$ $\angle C \cong \angle Z$ $\overline{AB}$ and $\overline{XY}$ $\overline{BC}$ and $\overline{YZ}$ $\overline{CA}$ and $\overline{ZX}$

IXL Lessons: 8th Grade → Q.1, Q.5

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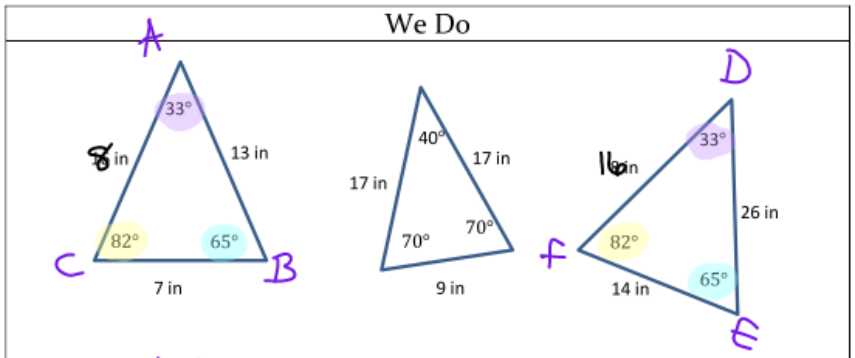
Example 1: Identifying Similar Figures

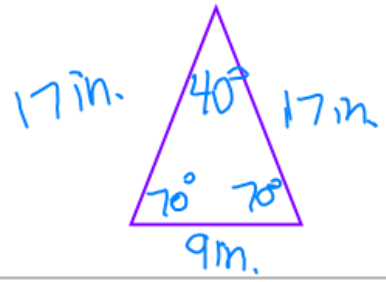
Which triangles are similar? ~

We Do



△ABC ~ △DEf

Draw a figure that is congruent to the middle triangle.



IXL Lessons: 8th Grade → Q.1, Q.5

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Example 2: Finding Missing Measures in Similar Figures

I Do	You Do
A picture is 10 inches wide and 8 inches tall. To display the picture on a web site, the picture must be reduced to 3.5 inches tall. How wide should the picture be on the web site for the two pictures to be similar?	A picture is 10 inches tall and 14 inches wide. It is to be scaled to 1.5 inches tall. How wide should the picture be on the web site for the two pictures to be similar?

w / t

$\frac{10\text{in.}}{8\text{in.}} = \frac{x}{3.5\text{in.}}$

$10 \cdot 3.5 = 8x$

$\frac{35}{8} = \frac{8x}{8}$

$4.375\text{in.} = x$

t / w

$\frac{10\text{in.}}{14\text{in.}} = \frac{1.5\text{in.}}{x}$

$\frac{21}{10} = \frac{10x}{10}$

$2.1\text{in.} = x$

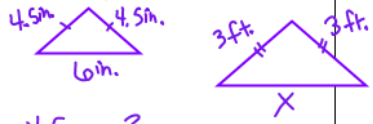
Example 3: Application

I Do	You Do
Renton gets a souvenir model of the pyramid over the entrance of the Louvre in Paris. It has faces in the shape of triangles. Two sides are 4 inches long and the base is 5.1 inches long. On the actual pyramid, each triangular face has two sides that are each 27.8 m long. What is the length of the base of the actual pyramid?	A t-shirt design includes an isosceles triangle with side lengths 4.5 inches, 4.5 inches, and 6 inches. An advertisement shows an enlarged version of the triangle with two sides that are each 3 feet long. What is the length of the third side of the triangle in the advertisement?

$\frac{4\text{in.}}{5.1\text{in.}} = \frac{27.8\text{m}}{x}$

$\frac{141.78}{4} = \frac{4x}{4}$

$35.4\text{m.} = x$



$\frac{4.5}{6} = \frac{3}{x}$

$\frac{18}{4.5} = \frac{4.5x}{4.5}$

$4\text{ ft.} = x$

IXL Lessons: 8th Grade → Q.1, Q.5