10-6 Practice

Similar Triangles

Determine whether each pair of triangles is similar. Justify your answer.

1. \( \text{yes} \)

For each set of measures given, find the measures of the missing sides if \( \triangle ABC \sim \triangle DEF \).

3. \( c = 4, d = 12, e = 16, f = 8 \)
   \[
   \frac{a}{6} = \frac{b}{8} = \frac{c}{12} = \frac{d}{10} = \frac{e}{16} = \frac{f}{8}
   \]

4. \( e = 20, a = 24, b = 30, c = 15 \)
   \[
   \frac{d}{10} = \frac{e}{20} = \frac{f}{15}
   \]

5. \( a = 10, b = 12, c = 6, d = 4 \)
   \[
   \frac{e}{4.8} = \frac{f}{2.4}
   \]

6. \( a = 4, d = 6, e = 4, f = 3 \)
   \[
   \frac{b}{8/3} = \frac{c}{2}
   \]

7. \( b = 15, d = 16, e = 20, f = 10 \)
   \[
   \frac{a}{12} = \frac{c}{7.5}
   \]

8. \( a = 16, b = 22, c = 12, f = 8 \)
   \[
   \frac{d}{7/3} = \frac{e}{14/3}
   \]

9. \( a = \frac{5}{2}, b = 3, f = \frac{11}{2}, e = 7 \)
   \[
   \frac{c}{35/6} = \frac{e}{33/14}
   \]

10. \( c = 4, d = 6, e = 5.625, f = 12 \)

11. SHADOWS Suppose you are standing near a building and you want to know its height. The building casts a 66-foot shadow. You cast a 3-foot shadow. If you are 5 feet 6 inches tall, how tall is the building?
   \[
   \frac{5.5}{3} = \frac{x}{66} \quad x = 121
   \]

12. MODELS Truss bridges use triangles in their support beams. Molly made a model of a truss bridge in the scale of 1 inch = 8 feet. If the height of the triangles on the model is 4.5 inches, what is the height of the triangles on the actual bridge?
   \[
   \frac{1'}{8'} = \frac{4.5'}{x} \quad x = 36'
   \]