

4.3 Similar Triangles, pages 150–153

4. Corresponding angles: $\angle P$ and $\angle T$, $\angle Q$ and $\angle U$, $\angle R$ and $\angle V$.

Corresponding sides: PQ and TU, PR and TV, QR and UV.

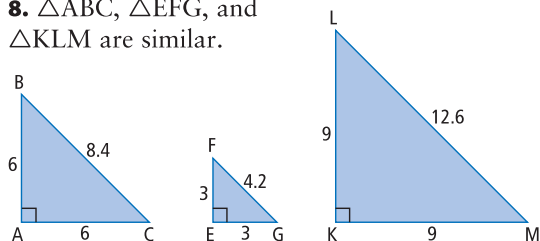
5. Corresponding angles: $\angle A$ and $\angle Y$, $\angle B$ and $\angle W$, $\angle C$ and $\angle X$.

Corresponding sides: AB and YW, BC and WX, AC and YX.

6. Yes, the triangles are similar because the sides are the proportional; the sides are related by a scale factor of 5.

7. No, the triangles are not similar because the sides are not proportional.

8. $\triangle ABC$, $\triangle EFG$, and $\triangle KLM$ are similar.



9. $x = 56$

10. $x = 10$

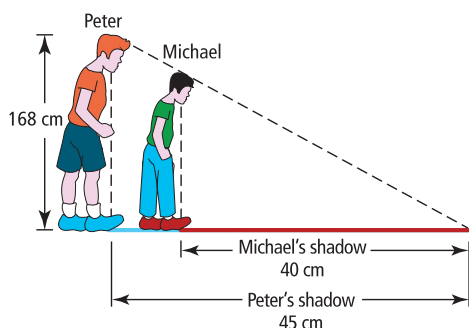
12. 2.0 m

13. 4.0 m

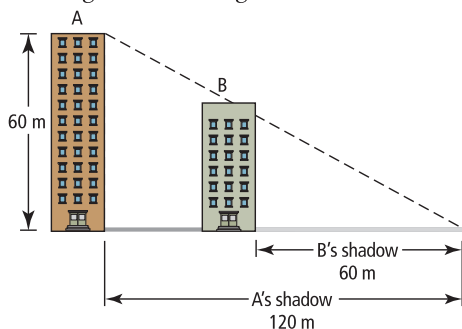
14. 7.68 m

15. $x = 76.25$ cm

16. Peter is taller. Michael is 149.3 cm tall.



17. Example: Two buildings, A and B, stand side by side. Building A casts a shadow of 120 m and is 60 m tall. Building B has a shadow of 60 m. Using the diagram, find the height of Building B.



$$\frac{60}{120} = \frac{x}{60}$$

Building B is 30 m tall.

18. a) $x = 420.48$ m b) The shadow may not reach the street level due to surrounding buildings.

19. a) No, the corresponding angles are not equal. The angle measures of one triangle are: 50° , 60° , and 70° . The angle measures of the other triangle are: 50° , 50° , and 80° . b) Yes, the triangles are similar because they both have angle measures of 45° , 60° , and 75° .

20. a) 13.3 cm and 16.0 cm b) 1:2.67

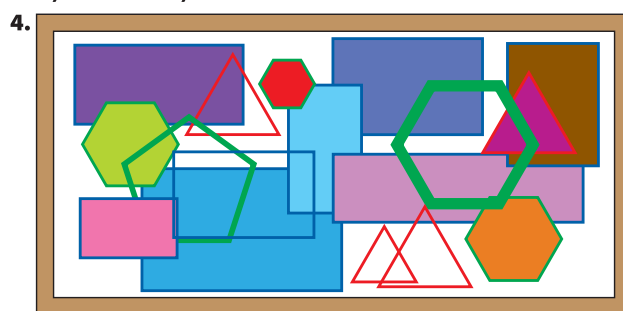
21. First, measure your height, and the length of the building's shadow. After measuring your own shadow, find the ratio of your shadow to the building's shadow. Then, divide your height by that value to find the height of the building.

22. $ZY = 4.9$ cm

23. The area is 150 cm^2 .

4.4 Similar Polygons, pages 157–159

3. a) Similar b) Not similar

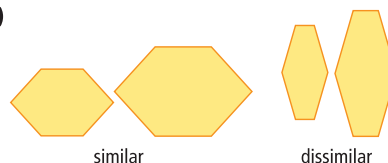


5. $x = 4$

6. $x = 2.8$ m

7. No. The corresponding angles must be the same.

8. a)



b) The two similar hexagons are similar to the photo because the interior angles are the same and the side lengths are related by a scale factor. The two dissimilar hexagons do not have these properties.

9. The side length of the game board will be 15.0 cm.

10. a) 7.5 m b) 1080° . Example: An octagon can be divided into six non-overlapping triangles.

11. a) The final enlargement should be 6 times the size of the original diagram. b) The corresponding angles are equal, and the dimensions are all enlarged by the same proportion.

12. 39.3 cm

13. 14.1 cm