

Watch. Practice. Understand. | Lesson 048

The Heart and Soul of Similar Polygons (Big Idea Geometry 8 4 Proportionality Theorems)

Watch the matching video: <https://www.youtube.com/watch?v=fKWG1GzC55k>

Practice focus: Similarity and proportions

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

- 01** Similar triangles have corresponding side lengths 6 and 9. If another side of the smaller triangle is 8, find the matching larger side.

- 02** Two similar polygons have side ratio 2:5. Find their perimeter and area ratios.

- 03** A 1.5-m stick casts a 2-m shadow. A tree casts an 8-m shadow at the same time on level ground. Find its height.

- 04** Find the geometric mean of 4 and 9, and compare it with their arithmetic mean.

Worked answers | Lesson 048

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- 01** Similar triangles have corresponding side lengths 6 and 9. If another side of the smaller triangle is 8, find the matching larger side.

Scale factor $9/6 = 3/2$. Larger side = $8(3/2) = 12$.

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- 02** Two similar polygons have side ratio 2:5. Find their perimeter and area ratios.

Perimeter ratio 2:5; area ratio $2^2:5^2 = 4:25$.

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- 03** A 1.5-m stick casts a 2-m shadow. A tree casts an 8-m shadow at the same time on level ground. Find its height.

Similar triangles: $h/8 = 1.5/2$, giving $h = 6$ m.

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- 04** Find the geometric mean of 4 and 9, and compare it with their arithmetic mean.

Geometric mean $\sqrt{36} = 6$. Arithmetic mean $13/2 = 6.5$.