

6.9 Similar Figures and Scale Drawings

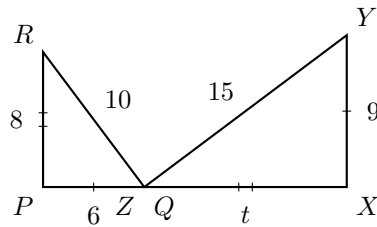
Chapter 6: Ratios, Rates, and Proportional Reasoning

Name: _____

Date: _____

Class/Period: _____

Problem 6.131 The two triangles below are similar, but the second has been rotated and reflected.



List the corresponding vertices and sides, find the scale factor from $\triangle PQR$ to $\triangle XYZ$, and determine t . Explain why the change in orientation does not change the correspondence.

Problem 6.132 A length 8 scales to 14. Find the scale factor.

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Problem 6.133 Scale sides 3, 7, 9 by factor 4.

Problem 6.136 A perimeter 36 scales by $\frac{5}{4}$. Find the new perimeter.

Problem 6.134 A map scale is 1 cm:15 km. Find 6 cm in reality.

Problem 6.137 An area 20 scales by length factor 3. Find the new area.

Problem 6.135 A model uses a scale of 1 : 50. Find the model length corresponding to an actual length of 600 cm.

Problem 6.138 An area 144 scales by length factor $\frac{1}{2}$. Find the new area.

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Problem 6.139 Two rectangles measure 4×10 and 6×14 . Are they similar? Explain by comparing corresponding side ratios.

Problem 6.142 Explain why a square and a nonsquare rectangle cannot be similar.

Problem 6.140 Two triangles have side sets 3, 4, 5 and 9, 12, 15. Find the scale factor.

Problem 6.143 A photograph 8 inches wide and 5 inches tall is enlarged to width 20 inches. Find the new height and area.

Problem 6.141 Explain why equal perimeters do not prove figures are similar.

Problem 6.144 A floor plan uses 1 inch for 6 feet. A room measures 2.5 inches by 3.75 inches on the plan. Find actual dimensions and area.

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Problem 6.145 The areas of two similar figures are in ratio $16 : 81$. Find the ratio of corresponding side lengths.

Problem 6.146 A model car is built at scale $1 : 18$. Its model wheelbase is 6.5 inches. Find the actual wheelbase in feet and inches.