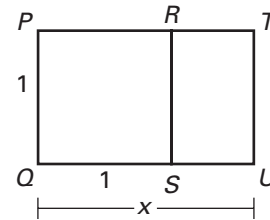


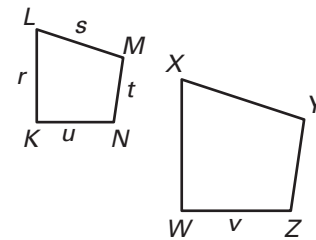
Challenge: Skills and Applications

For use with pages 473–479

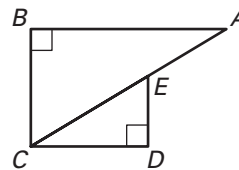
1. In the diagram, $PQSR$ is a square and $RSUT \sim TPQU$. Find the value of x . Express your answer in exact form and as a decimal approximation. (This number is known as the *golden ratio*.)



2. In the diagram, $KLMN \sim WXYZ$.
- Find WX , XY , and YZ in terms of r , s , t , u , and v .
 - Use the result of part (a) to show that the ratio of the perimeters is the same as the ratio of any pair of corresponding sides.

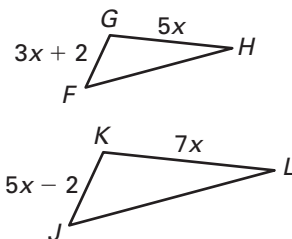


3. In the diagram, $\overline{BA} \parallel \overline{CD}$ and $\frac{CD}{AB} = \frac{DE}{BC}$. Write a paragraph proof to show that $\triangle ABC \sim \triangle CDE$. (Hint: Let $k = \frac{CD}{AB}$. You may use the Pythagorean Theorem.)

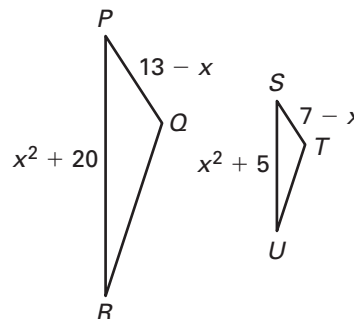


In Exercises 4 and 5, the two triangles are similar. Find all possible values of x .

4. Given: $\triangle FGH \sim \triangle JKL$



5. Given: $\triangle PQR \sim \triangle STU$



6. A 5-inch by 8-inch photo was enlarged to make a poster, as shown. If the dimensions of the poster are $(x^2 - 6)$ inches by $(x^2 + 12)$ inches, what is the area of the poster?

