1. In the diagram, $PQRS$ 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, $KLMN \simWXYZ$.
   a. Find $WX$, $XY$, and $YZ$ in terms of $r$, $s$, $t$, $u$, and $v$.
   b. 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, $BA \parallel CD$ 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?