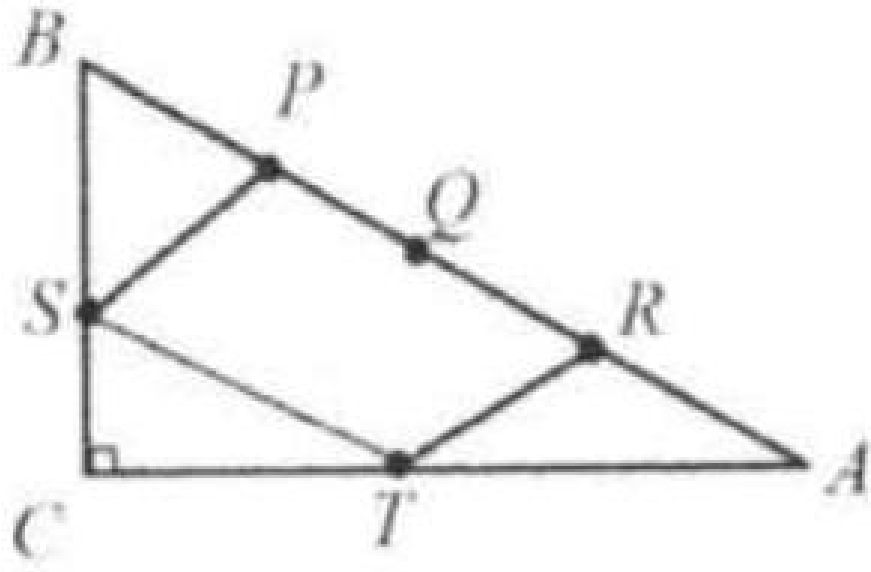


Problem 1

Problem

(Phillips Academy Prize Exam) In right triangle ABC , angle C is the right angle. P, Q and R are points which divide AB into four equal parts. S and T are the midpoint of BC and AC , respectively. AB equals 24 inches. Find the perimeter of $PRST$.



Solution

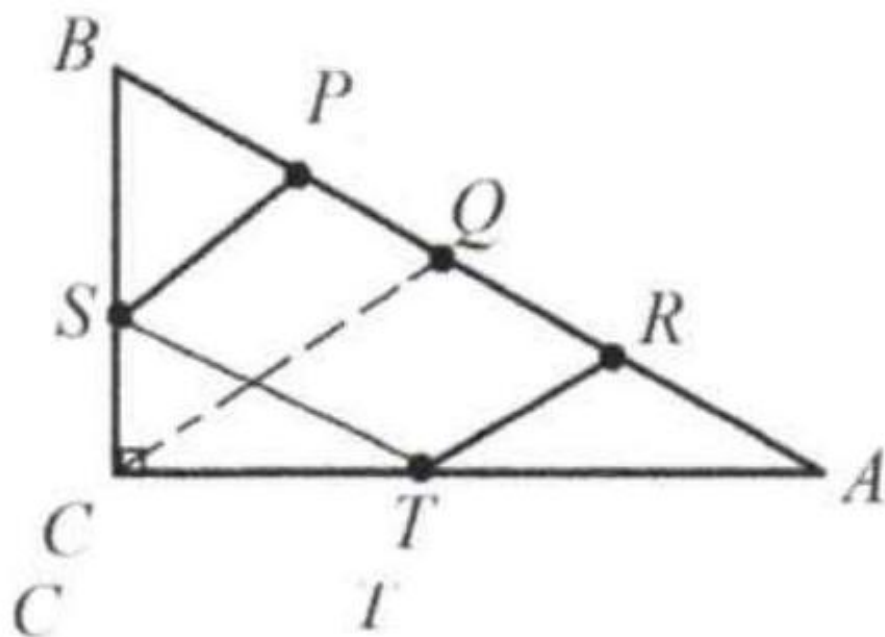
36.

Draw median CQ . Since the median to the hypotenuse of a right triangle is half the hypotenuse,

$$CQ = \frac{1}{2}AB = \frac{24}{2} = 12.$$

Since SP , RT , and ST are midlines,

$$SP = \frac{1}{2}CQ = \frac{12}{2} = 6 = RT \text{ and } ST = \frac{1}{2}AB = \frac{24}{2} = 12.$$



The perimeter of $PRST$ is 36 .