



Problem of the Week

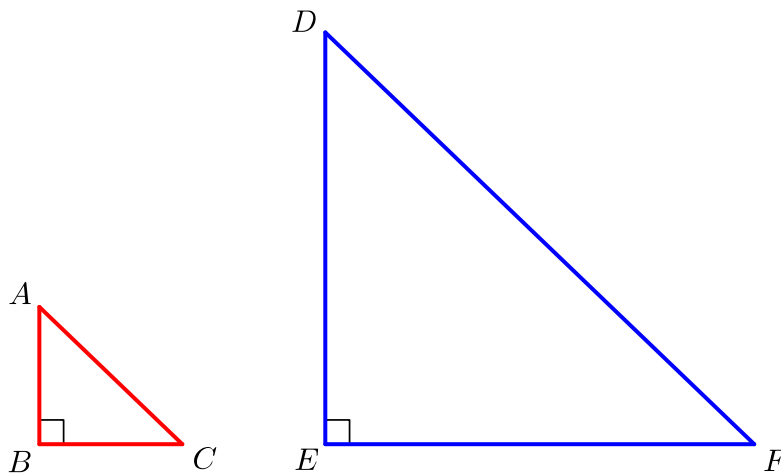
Problem C

Scaling Up

A student constructs a right-angled triangle, $\triangle ABC$, with an area of 6 cm^2 .

She constructs a second triangle, $\triangle DEF$, whose side lengths are exactly three times the lengths of the sides of her original triangle. That is, $DE = 3AB$, $EF = 3BC$ and $DF = 3AC$.

Given this information, determine the area of $\triangle DEF$.



It may be helpful to notice that $\triangle ABC$ and $\triangle DEF$ are *similar*. The symbol for similarity is “ \sim ”.

Two triangles are similar if their corresponding side lengths are in the same ratio. That is,

$$\text{If } \frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}, \text{ then } \triangle ABC \sim \triangle DEF$$

When two triangles are similar, it is also true that corresponding angles are equal. That is,

$$\begin{aligned} \text{If } \triangle ABC \sim \triangle DEF, \text{ then } \angle ABC &= \angle DEF, \\ \angle BCA &= \angle EFD, \text{ and} \\ \angle CAB &= \angle FDE. \end{aligned}$$

STRANDS GEOMETRY AND SPATIAL SENSE, MEASUREMENT

