

**PROBLEM-OF-THE-DAY: ALGEBRA 1****WEEK:** January 28 to February 1**DAY:** Friday

**RISD Objective:** Provided the length of a leg of a right triangle and a hypotenuse (including word problems), students will use the Pythagorean Theorem to find the length of the other leg, applying it as necessary.

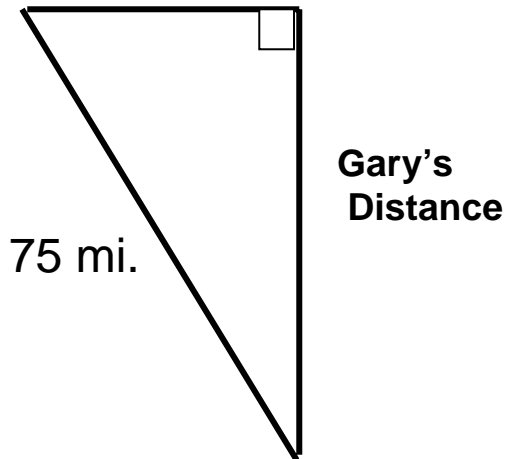
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**PROBLEM #95**

**Gary and Larry are boating with their families in the ocean. When they leave at the end of the day, Gary and his family travel in their boat due south at 24 mph for 2.5 hours. Larry and family travel due east for the same length of time. If the boats are 75 miles apart after 1.5 hours, how fast was Larry and his family traveling?**

**MODEL SOLUTION #95**

Larry's distance



To find the distance Gary traveled:

$$\begin{aligned} \text{Gary: } \quad d &= rt \\ d &= (24)(2.5) \\ d &= 60 \text{ miles} \end{aligned}$$

**Gary traveled 60 miles***Now use the Pythagorean Theorem*

$$\text{leg}^2 + \text{leg}^2 = \text{hypotenuse}^2$$

$$60^2 + x^2 = 75^2 \quad \text{replace values}$$

$$3600 + x^2 = 5625 \quad \text{square 60 and 75}$$

$$x^2 = 2025 \quad \text{subtract 3600 from both sides}$$

$$x = 45 \quad \text{square root both sides}$$

Larry's distance is 45 miles.

Now use  $d = rt$  to find Larry's rate.

$$45 = r(2.5)$$

$$18 = r$$

**Larry's rate is 18 mpg.**