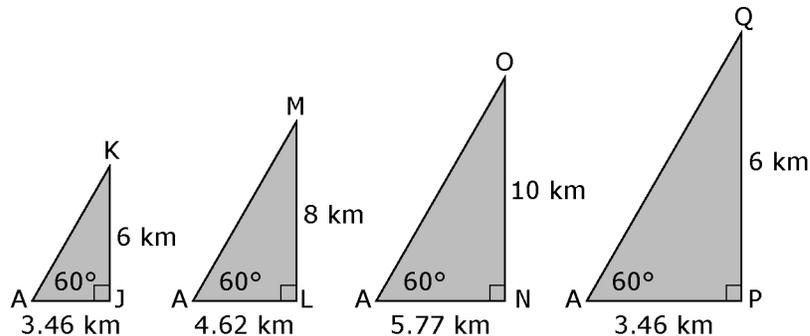


## Section 7.2 Extended Explore Right Triangles

Use this worksheet to help you extend the exploration on pages 336–337.

1. Suppose you are sailing at a tacking angle of  $60^\circ$ . Each triangle below shows a tacking angle of  $60^\circ$  and a different off course distance.



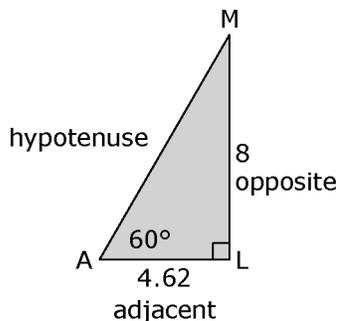
Compare the off course distance to the intended direction. Complete a table similar to the one shown below. Express your answers to the nearest hundredth of a kilometre.

Triangle	Off Course Distance (km)	Intended Distance (km)	$\frac{\text{Off Course Distance}}{\text{Intended Distance}}$
AJK			
ALM			
ANO			
APQ			

2. What pattern do you notice in the ratios?
3. a) The diagram in step 1 shows a set of similar triangles. How do you know the triangles are similar?
- b) How does changing the side lengths of the triangle affect the ratio of  $\frac{\text{off course distance}}{\text{intended distance}}$ ?
- c) What can you conclude about the ratio of the corresponding sides and the angle?



4. You have been working with a right triangle and a ratio. In the triangle shown, the tangent ratio of  $\angle A$  compares the length of the **opposite side** to the length of the **adjacent side** of  $\angle A$ . The hypotenuse is labelled.



- a) Use a scientific calculator to determine the ratio of the opposite side divided by the adjacent side for a  $60^\circ$  angle. Round your answer to two decimal places.
- b) How does the value on your calculator relate to the values in the table for step 1?
5. **Reflect** Use your results from steps 1 to 4 to revise the formula you developed in the shorter exploration in the student resource.
6. **Extend Your Understanding** Use your formula to state the tangent ratios for *both*  $\angle D$  and  $\angle F$  in the triangle below.

