

The Sine Ratio

We have investigated the relationship between angle of elevation and rise over run.

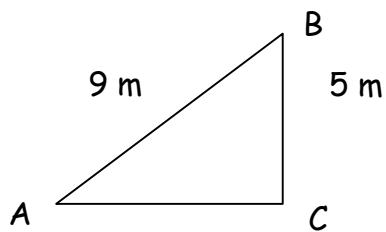
Now let's investigate the relationship between angle of elevation and rise or run:

- a) Determine the slope of a 58° angle of elevation.
- b) Draw a right angle triangle to illustrate this slope, and determine the hypotenuse:
- c) Draw the unit triangle for this angle of elevation:
- d) Evaluate $\sin(58^\circ)$ and describe how it is related to each of the triangles above.
- e) Evaluate $\sin(32^\circ)$ and describe how it is related to each of the triangles above.

The sine of an angle is the length of the opposite side in a unit triangle.

Example – Draw a right angle triangle with a hypotenuse of 17 cm and an angle of elevation of 28° . Determine the base and the height of the triangle.

Example – Reduce the following right triangle to a unit triangle and then determine the angles.

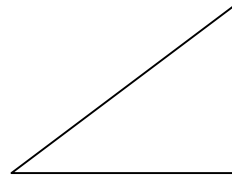
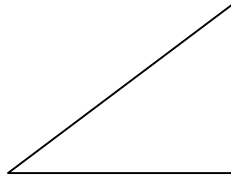
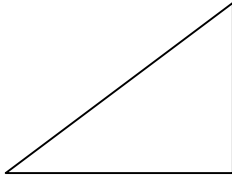


Repeat the above calculations using unit triangles with side lengths rounded to:

one decimal place

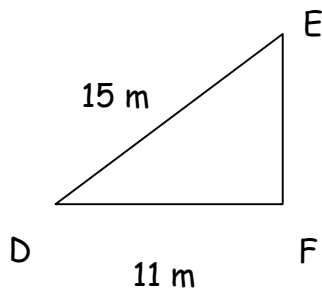
two decimal places

three decimal places



In order to ensure that we have an accurate result we should express side lengths as _____ values or _____.

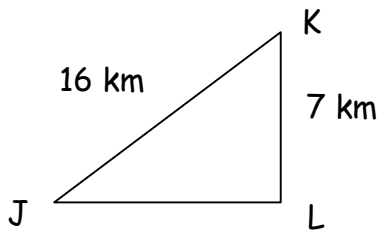
Example – Reduce the following right triangle to a unit triangle and then determine the angles.



Homework – Please solve the following problems and complete questions # 3, 6, 8 and 10acde on page 372.

1. Draw a right angle triangle with a hypotenuse of 86 m and an angle of elevation of 33° . Determine the base and the height of the triangle.

2. Reduce this right angle triangle to a unit triangle then determine the angles.



3. Reduce this right angle triangle to a unit triangle then determine the angles.

