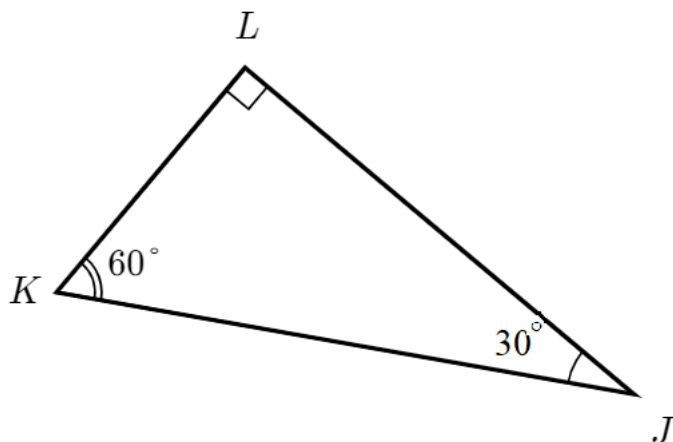


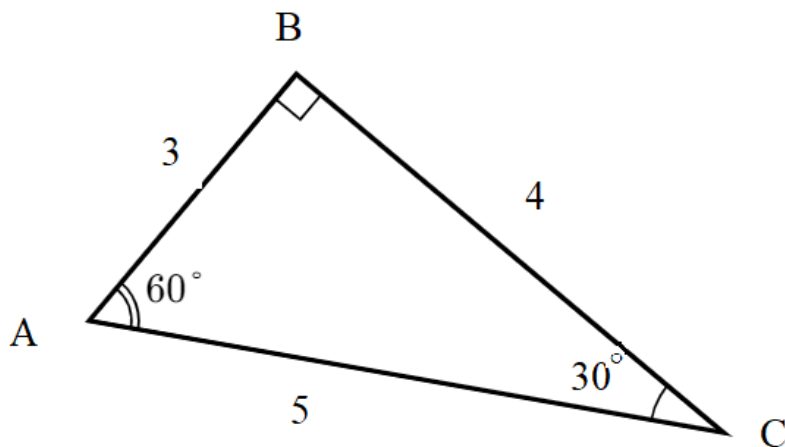
## TRIGONOMETRIC RATIOS



**GIVEN** a right triangle  $\Delta JKL$  with angles indicated 30 – 60 – 90,

|                                                                                    |                                                                                    |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Sine 60 = $\frac{\text{opposite side}}{\text{hypotenruse side}} = \frac{jl}{jk}$   | Sine 30 = $\frac{\text{opposite side}}{\text{hypotenruse side}} = \frac{kl}{jk}$   |
| Cosine 60 = $\frac{\text{adjacent side}}{\text{hypotenruse side}} = \frac{kl}{jk}$ | Cosine 30 = $\frac{\text{adjacent side}}{\text{hypotenruse side}} = \frac{jl}{jk}$ |
| Tangent 60 = $\frac{\text{opposite side}}{\text{adjacent side}} = \frac{jl}{kl}$   | Tangent 30 = $\frac{\text{opposite side}}{\text{adjacent side}} = \frac{kl}{jl}$   |

Example of the ratios with numbers:



|                                                                                      |                                                                                      |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Sine 60 = $\frac{\textit{opposite side}}{\textit{hypotenruse side}} = \frac{4}{5}$   | Sine 30 = $\frac{\textit{opposite side}}{\textit{hypotenruse side}} = \frac{3}{5}$   |
| Cosine 60 = $\frac{\textit{adjacent side}}{\textit{hypotenruse side}} = \frac{3}{5}$ | Cosine 30 = $\frac{\textit{adjacent side}}{\textit{hypotenruse side}} = \frac{4}{5}$ |
| Tangent 60 = $\frac{\textit{opposite side}}{\textit{adjacent side}} = \frac{4}{3}$   | Tangent 30 = $\frac{\textit{opposite side}}{\textit{adjacent side}} = \frac{3}{4}$   |