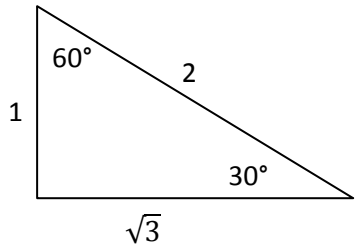
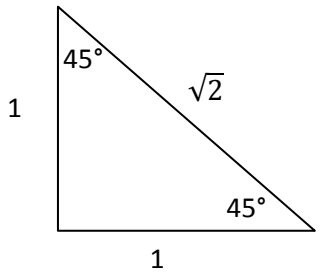
Trigonometric Ratios 1

1. Use the triangle below to write down the exact values for each of the following ratios:



a) sin 30° b) cos 60° c) tan 30°
d) cos 30° e) tan 30° f) sin 60°

2. Use the triangle below to write down the exact values for each of the following ratios:



a) sin 45° b) tan 45° c) cos 45°

3. Evaluate the simplify each of the following, using exact values:

a) $sin30° \times \cos30°$ b) $\frac{tan\,45°}{cos\,45°}$ c) $\frac{sin\,45°}{sin\,30°} \times \frac{sin\,60°}{tan\,30°}$

d) $sin45° \times \cos30° \times \tan45°$ e) $sin60° \times \frac{\cos 45°}{tan\,30°}$ f) $cos45° \div \sin45°$

4. Robert has a ladder which is 4.2m long which he places against a high wall. If the steepest angle the ladder can safely stand at is 75°, how high up the wall will the ladder reach?

5. Fred walks along the footpath, which goes directly east, then directly south. His daughter Cindy runs across the grass straight from the start of the path to the end. If the path goes east for 50m, and Cindy runs at an angle of 35° to the path:

a) How far does Fred walk in total?

b) How far does Cindy run in total?

c) How much shorter is Cindy's route?