SOH CAH TOA

7.4 The Tangent Ratio
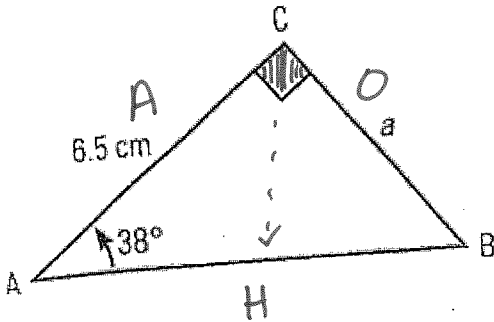
Name: __Key__

Date: __Dec 04__

For a given angle, the tangent ratio can be stated as follows.

$$\text{tangent} = \frac{\text{opposite}}{\text{adjacent}}$$

Examples:
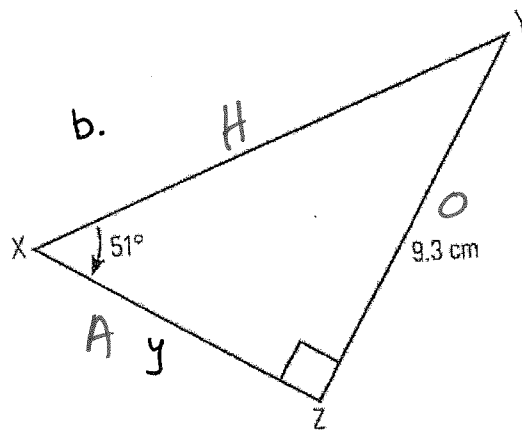
1. Find the indicated side of each triangle.

a.

$$T = \frac{O}{A}$$

$$(\tan 38°) = \frac{O}{6.5}$$
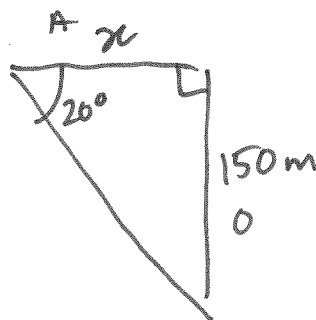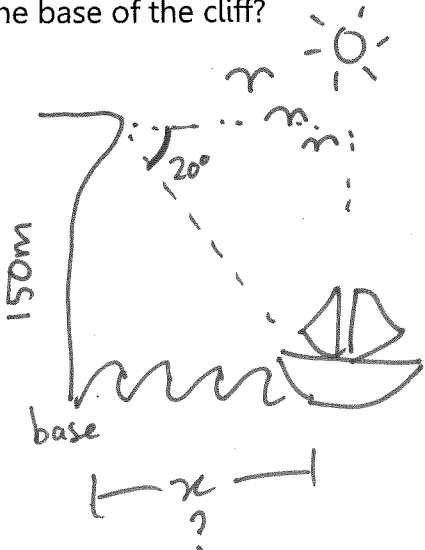
$$(\tan 38°)(6.5) = O$$

$$\boxed{5.1 \, cm = O}$$

b.

$$T = \frac{O}{A}$$

$$\tan 51° = \frac{9.3}{A}$$

$$A = \frac{9.3}{\tan 51°} = \frac{9.3}{1.235}$$

$$\boxed{A = 7.5 \, cm}$$

2. The angle of depression to a boat from the top of a 150m cliff is 20°. How far is the boat from the base of the cliff?

$$T = \frac{O}{A}$$

$$\tan 20° = \frac{150}{A}$$

$$A = \frac{150}{\tan 20°}$$

$$A = \frac{150}{0.3640}$$

$$\boxed{A = 412 \, m}$$