

Key

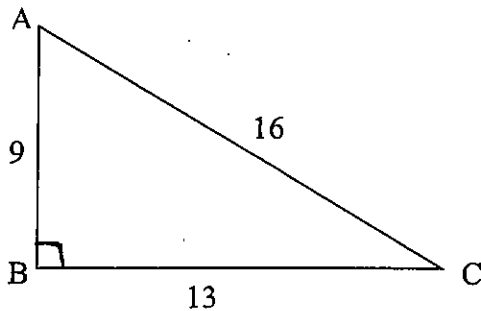
Trigonometry Review

A. Determine each ratio, to 4 decimal places.

$$1. \sin 37^\circ = 0.6018 \quad 2. \cos 25^\circ = 0.9063 \quad 3. \tan 70^\circ = 2.7475$$

B. Determine the angle, to the nearest whole degree, for each given ratio.

$$1. \sin A = \frac{2}{5} \quad A = 24^\circ \quad 2. \cos B = 0.2659 \quad B = 75^\circ \quad 3. \tan C = 1 \quad C = 45^\circ$$

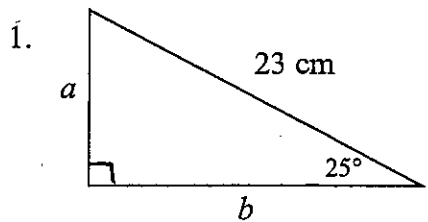
C. Given the triangle below, determine $\sin A$, $\cos A$ and $\tan A$.

$$\sin A = \frac{13}{16}$$

$$\cos A = \frac{9}{16}$$

$$\tan A = \frac{13}{9}$$

D. Determine the lengths, to one decimal place, of the missing sides.



$$\sin 25^\circ = \frac{a}{23} \quad \cos 25^\circ = \frac{b}{23}$$

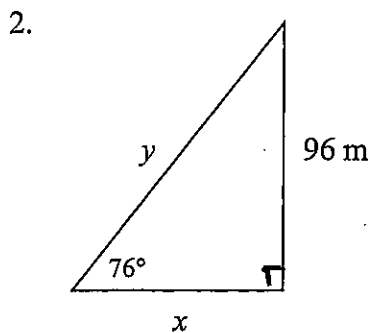
$$a = 23 \times \sin 25^\circ$$

$$a = 9.7$$

$$b = 23 \times \cos 25^\circ$$

$$a = 9.7 \text{ cm}$$

$$b = 20.8 \text{ cm}$$



$$\tan 76^\circ = \frac{96}{x}$$

$$x = \frac{96}{\tan 76^\circ}$$

$$x = 23.9 \text{ m}$$

$$\sin 76^\circ = \frac{96}{y}$$

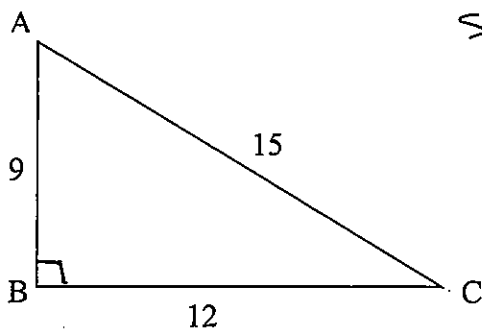
$$y = \frac{96}{\sin 76^\circ}$$

$$y = 98.9 \text{ m}$$

$$x = 23.9 \text{ m}$$

$$y = 98.9 \text{ m}$$

E. Given the triangle below, determine the measure of angles A and C.



$$\sin A = \frac{12}{15}$$

$$A = \sin^{-1}\left(\frac{12}{15}\right)$$

$$A = 53.1^\circ$$

$$\text{Angle A} = 53^\circ$$

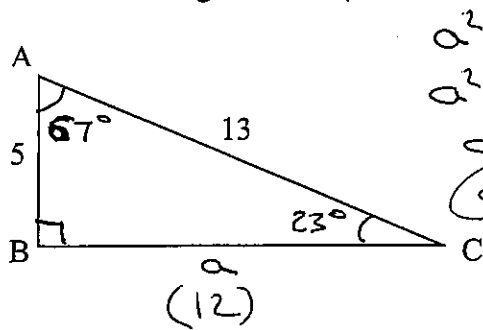
$$\text{Angle C} = 37^\circ$$

$$\angle C = 90^\circ - \angle A$$

$$= 90^\circ - 53^\circ$$

$$= 37^\circ$$

F. Solve the triangle below. (Find the measure any missing lengths or angles).



$$a^2 + 5^2 = 13^2$$

$$a^2 + 25 = 169$$

$$a^2 = 144$$

$$a = 12$$

$$\sin C = \frac{5}{13}$$

$$\angle C = \sin^{-1}\left(\frac{5}{13}\right)$$

$$\angle C = 22.6^\circ \text{ or } 23^\circ$$

$$\angle A = 90^\circ - 23^\circ$$

$$= 67^\circ$$

Problem Solving

G. The foot of a ladder is 2m from the base of a wall. The angle formed by the ladder and the ground is 68°. How long is the ladder? 5.3m

H. The angle of elevation to the top of a high rise building is 78° for a person standing 62 m away from the base of the building. How tall is the building? 291.7m

I. Find the angle of depression from the top of a lighthouse, 90 m above sea level, to a ship 3 km offshore. 1.7°

J. From a point 130 m in front of a school, the angle of elevation to the base of a flag pole placed on the top of the school is 31.6°, and the angle of elevation to the top of the flagpole is 33.2°. How tall is the flagpole? 5.1m

K. To estimate the distance across a river, Tobias sighted a rock directly across the river. He then walked 40 m downstream, and then estimated the angle between the river bank he was on and the rock across the river to be around 30°. Calculate the approximate width of the river. 23.1m

omit L. A ship leaves port at noon, heading due west at 18 knots. An hour later it changes course on a bearing of 295°. Find the ship's bearing and distance from port at 4 pm. (Heads up! This is a multi-step question. Make a good sketch and have an overall plan, before you start crunching numbers)

+ Pg 333 # 4 (a, b)