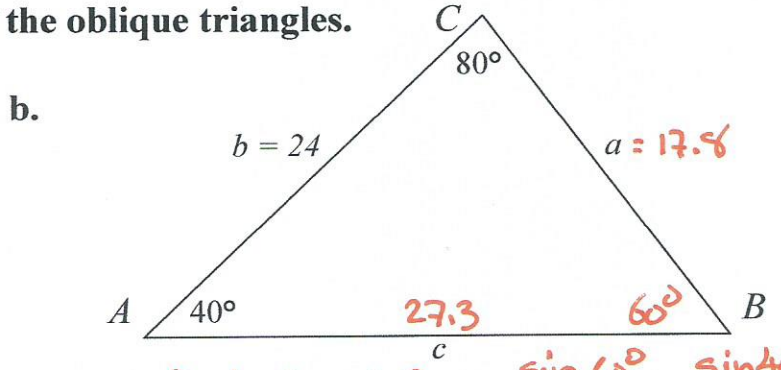
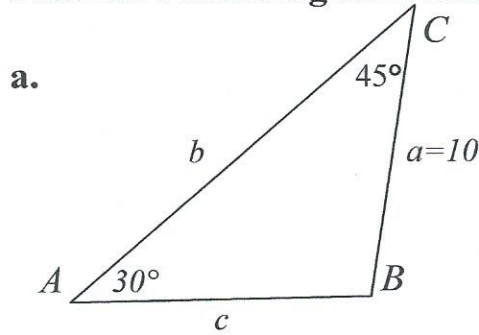


Practice 9.2: The Law of Sines

1. Find the remaining sides and angles of the oblique triangles.



c. $A = 50^\circ, C = 20^\circ, b = 200$

d. $A = 10^\circ, B = 50^\circ, a = 12$

Handwritten calculations for problem b:

$$B = 180^\circ - A - C = 60^\circ$$

$$\frac{\sin 60^\circ}{24} = \frac{\sin 40^\circ}{a}$$

$$a = \frac{24 \sin 40^\circ}{\sin 60^\circ} = 17.8$$

$$c = \frac{24 \sin 80^\circ}{\sin 60^\circ} = 27.3$$

2. Use the given information to find the number of triangle possible.

a. $A = 60^\circ, b = 20, a = 19$

b. $A = 60^\circ, b = 20, a = 21$

c. $A = 30^\circ, b = 10, a = 5$

$a = h \Rightarrow 1$ right triangle

d. $A = 30^\circ, b = 10, a = 4$

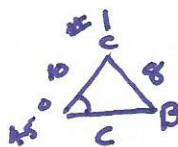
Handwritten notes for problem d:
 $h = b \sin A = 10 \sin 30^\circ = 5$
 $a < h \Rightarrow 0$ triangles

e. $A = 53^\circ, b = 25, a = 28$

f. $A = 53^\circ, b = 25, a = 22$

3. Find the remaining sides and angles of the oblique triangles (2).

a. $A = 30^\circ, b = 20, a = 15$



b. $A = 45^\circ, b = 10, a = 8$

$$\frac{\sin 45^\circ}{8} = \frac{\sin B}{10}$$

$$\sin B = \frac{10 \sin 45^\circ}{8}$$

$$\sin^{-1}\left(\frac{10 \sin 45^\circ}{8}\right) = B = 62.1^\circ, C = 72.9^\circ$$

$B' = 180^\circ - B = 117.9^\circ$ always supplementary

$C' = 17.1^\circ$ find c: $\frac{\sin 45^\circ}{8} = \frac{\sin 17.1^\circ}{c}$

$$c = \frac{8 \sin 17.1^\circ}{\sin 45^\circ} = 3.3$$



Handwritten notes for problem 3b:
 $h = b \sin A = 10 \sin 45^\circ = 7.1$
 $h < a < b \Rightarrow 2$ triangles