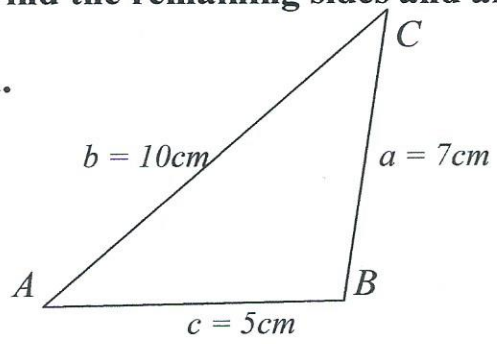
Name Mine Date

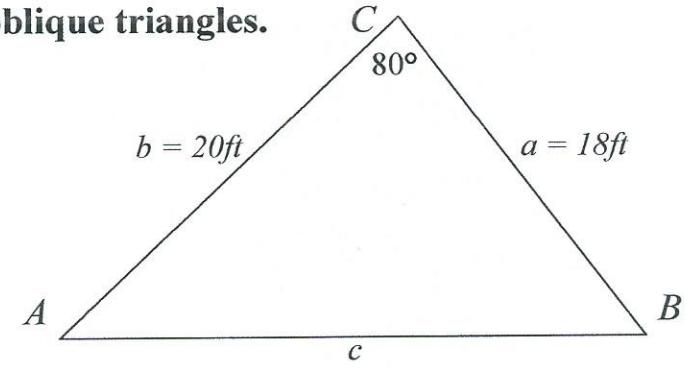
Practice 9.3: The Law of Cosines

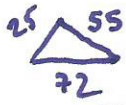
1. Find the remaining sides and angles of the oblique triangles.

a.



b.





(SSS) **c.** $a = 55mi, b = 25mi, c = 72mi$

$\cos A = \frac{b^2+c^2-a^2}{2bc} = \frac{25^2+72^2-55^2}{2 \cdot 25 \cdot 72}$

$\cos A = \frac{58}{75} : \cos^{-1}\left(\frac{58}{75}\right) = A = 39.30$

$\cos^{-1}\left(\frac{25^2+55^2-72^2}{2 \cdot 25 \cdot 55}\right) = C = 123.90$

$\cos^{-1}\left(\frac{55^2+72^2-25^2}{2 \cdot 55 \cdot 72}\right) = B = 16.7^\circ$

179.90

d. $A = 120°, b = 3km, c = 10km$

e. $a = 4in, b = 9in, c = 10in$

f. $C = 55°, b = 3m, a = 10m$

~~$a^2 = b^2 + c^2 - 2bc \cdot \cos C$~~

$c^2 = b^2 + a^2 - 2ba\cos C$

$= 3^2 + 10^2 - 2 \cdot 3 \cdot 10 \cdot \cos 55^\circ$

$c^2 = 74.59 \quad c = 8.6$

$\frac{\sin 55^\circ}{8.6} = \frac{\sin B}{3} = \frac{\sin a}{10}$

$\sin B = 3\sin 55^\circ / 8.6 \quad \sin^{-1}\left(\frac{3\sin 55^\circ}{8.6}\right) = B = 16$

$\sin^{-1}\left(\frac{10\sin 55^\circ}{8.6}\right) = A = 72.3$