

Solve each triangle. Round each side to the nearest tenth and each angle to the nearest minute.

① $a=4$ $b=5$ $c=8$ SSS Cosines

$$5^2 = 4^2 + 8^2 - [2(4)(8)\cos B]$$

$$25 = 16 + 64 - 64\cos B$$

$$-55 = -64\cos B$$

$$\frac{55}{64} = \cos B$$

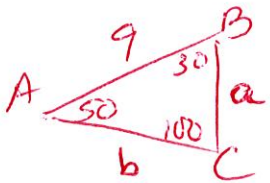
$A=24^\circ 9'$ $B=30^\circ 45'$ $C=125^\circ 6'$

$$4^2 = 5^2 + 8^2 - [2(5)(8)\cos A]$$

$$-73 = -80\cos A$$

$$\frac{73}{80} = \cos A$$

② $A=50^\circ$ $B=30^\circ$ $c=9$ ASA Sines

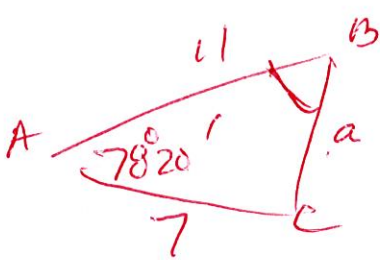


$$\frac{\sin 100}{9} = \frac{\sin 50}{a}$$

$$\frac{\sin 100}{9} = \frac{\sin 30}{b}$$

$a=7$ $b=4.6$

③ $A=78^\circ 20'$ $b=7$ $c=11$ SAS Law of Cosines



$$a^2 = 7^2 + 11^2 - [2(7)(11)\cos 78^\circ 20']$$

$$a^2 = 138.858 \quad a = 11.8$$

$$7^2 = 11^2 + 11.8^2 - [2(11)(11.8)\cos B]$$

④ $a=25$ $b=30$ $A=46^\circ 18'$ A.S.S Law of Sines

$$\frac{\sin 46^\circ 18'}{25} = \frac{\sin B}{30}$$

$B=60^\circ 11'$ $B=35^\circ 32'$ $C=66^\circ 8'$

Case 1 $A=46^\circ 18'$ $B=60^\circ 11'$ $C=73^\circ 31'$ $\frac{\sin 46^\circ 18'}{25} = \frac{\sin 73^\circ 31'}{c}$

$a=25$ $b=30$ $c=33.2$

Case 2 $A=46^\circ 18'$ $B=119^\circ 49'$ $C=13^\circ 53'$ $\frac{\sin 46^\circ 18'}{25} = \frac{\sin 13^\circ 53'}{c}$

$a=25$ $b=30$ $c=8.3$