Name: Key

Law of Sines: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Law of Cosines: $a^2 = b^2 + c^2 - 2bc\cos A$, $b^2 = a^2 + c^2 - 2ac\cos B$, $c^2 = a^2 + b^2 - 2ab\cos C$

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1. Law of Sines (Law of Cosines)

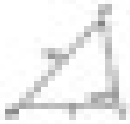
$c^2 = 11^2 + 16^2 - 2(11)(16)\cos 48$

$c^2 = 121 + 256 - 352\cos 48$

$\frac{\sin 48}{16.5} = \frac{\sin B}{11}$ $\quad c = 15.5$

$\angle A = 89.1°$ $\quad \angle B = 37.6°$ $\quad c = 15.5$

2. Law of Sines (Law of Cosines)

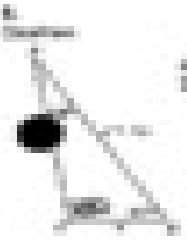


$\frac{\sin 52}{10} = \frac{\sin A}{7}$

$A = 40.9°$

$\angle A = 40.9°$ $\quad \angle B = 91.1°$ $\quad c = 8.4$

3. Law of Sines (Law of Cosines)



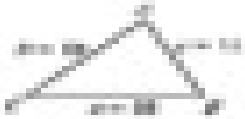
$\frac{\sin 100}{12} = \frac{\sin 37}{b}$

$b = 15.1$

$\frac{\sin 100}{12} = \frac{\sin 33}{c}$

$\angle C = 80°$ $\quad a = 14.8$ $\quad c = 10.2$

4. Law of Sines (Law of Cosines)



$22^2 = 18^2 + 14^2 - 2(18)(14)\cos A$

$484 = 324 + 196 - 504\cos A$

$-36 = -504\cos A$

$A = 82.1°$

$\angle A = 82.1°$ $\quad \angle B = 58.9°$ $\quad \angle C = 39.1°$

5. Law of Sines (Law of Cosines)

$a^2 = 10^2 + 8^2 - 2(10)(8)\cos 34$

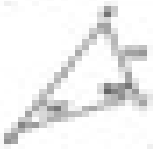
$a^2 = 164 - 160\cos 34$

$a = 12.0$

$\frac{\sin 34}{12} = \frac{\sin B}{10}$

$\angle A = 34.6°$ $\quad \angle C = 111.4°$ $\quad c = 12.0$

6. Law of Sines (Law of Cosines)



$\frac{\sin 38}{22} = \frac{\sin 50}{a}$

$\frac{\sin 38}{22} = \frac{\sin 92}{c}$

$\angle A = 50°$ $\quad a = 17.9$ $\quad c = 35.7$