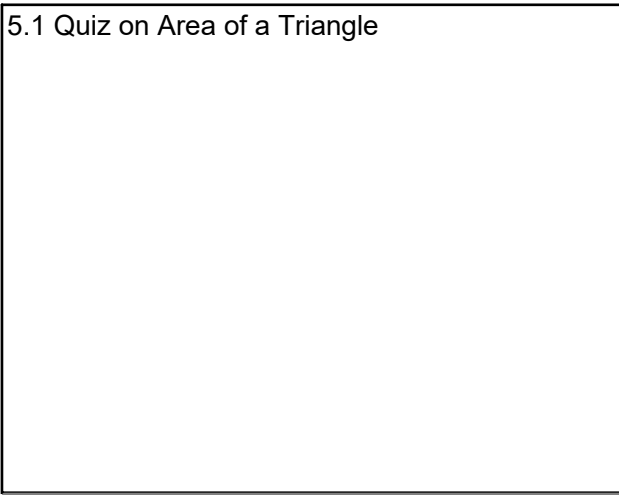


5.1 Quiz on Area of a Triangle



Nov 29-9:05 AM

Homework ?'s

$2 \cdot 21780 = \frac{1}{2} \cdot 220 \cdot X \cdot \sin 75$
 (9)

$43560 = \frac{220 \cdot X \cdot \sin 75}{2}$
 $(220 \sin 75)$

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(16)

$180 - 58 - 42 = 80$
 $\frac{\sin 80}{10} = \frac{\sin 42}{X}$
 $X \sin 80 = 10 \sin 42$
 $X = \frac{10 \sin 42}{\sin 80}$
 $X = 6.795 \text{ miles}$

Dec 1-9:52 AM

Calendar Math November (Light Yellow)

SOH-CAH-TOA
Trig Ratios

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$
 $\cos \theta = \frac{\text{adj}}{\text{hyp}}$
 $\tan \theta = \frac{\text{opp}}{\text{adj}}$

Nov 29-9:06 AM

Example 1: Find the missing side

$\sin 63^\circ = \frac{11}{x}$
 $x \sin 63^\circ = 11$
 $x = \frac{11}{\sin 63}$
 $x = 12.35$

Dec 1-7:35 AM

Example 2:

$\cos 30^\circ = \frac{y}{12}$
 $12 \cos 30 = y$
 $6 \cdot 2 \cdot \frac{\sqrt{3}}{2}$
 $6\sqrt{3}$
 $y = 10.392$

Dec 1-7:31 AM

Example 3:

5 opp
adj z
24

$$\tan 24 = \frac{5}{z}$$

$$z = \frac{5}{\tan 24}$$

$$z = 11.23$$

Dec 1-7:36 AM

Book 2 Pg. 99

The Ambiguous Case (SSA)

If you are given two angles and one side (ASA or AAS), the Law of Sines will easily provide ONE solution for a missing side. However, the Law of Sines has a problem dealing with SSA. If you are given two sides and one angle, where you must find an angle, the Law of Sines could possibly provide you with one or more solutions or even no solution at all.

SSA = 2 possible
2 missing angles
Check for a second triangle

Nov 29-9:07 AM

Use the Law of Sines to solve the triangle.

$A = 40^\circ$ $a = 3$
 $B = 25.374^\circ$ $b = 2$
 $C = 114.626^\circ$ $c = 4.243$

$$\frac{2 \sin 40}{3} = \frac{\sin B}{2}$$

$$\sin B = \frac{2 \sin 40}{3}$$

$$\sin^{-1}\left(\frac{2 \sin(40)}{3}\right)$$

$$B = 25.374^\circ$$

$$\frac{\sin 40}{3} = \frac{\sin 114.626}{c}$$

$$\frac{3}{\sin 40} = \frac{c}{\sin 114.626}$$

$$\frac{3 \sin 114.626}{\sin 40} = c$$

Nov 29-9:07 AM

Check for 2nd triangle

The first angle we solved for was B

$$B_2 = 180 - B_1$$

$$180 - 25.374$$

$$B_2 = 154.626$$

Given

$$40 + B_2 =$$

$$40 + 154.626 = 194.626$$

$$C_2 = 180 - 194.626$$

Dec 1-10:20 AM

~~$A_2 = 40$~~
 ~~$B_2 = 154.626$~~
 ~~$C_2 =$~~

Dec 1-10:22 AM

Ex 2) Triangle ABC with sides $a = 6$, $b = 8$ and $m\angle A = 35^\circ$

$$A = 35^\circ$$

$$a = 6$$

$$b = 8$$

$$B = 49.866^\circ$$

$$C = 95.114^\circ$$

$$c = 10.719$$

$$\frac{\sin 35}{6} = \frac{\sin B}{8}$$

$$\frac{8 \sin 35}{6} = \sin B$$

$$\sin^{-1}\left(\frac{8 \sin 35}{6}\right)$$

$$B = 49.866^\circ$$

Nov 29-9:08 AM

2nd triangle

$$A_2 = 35^\circ \quad a_2 = 6 \quad \frac{\sin 35^\circ}{b} = \frac{\sin 14.9^\circ}{c_2}$$

$$B_2 = 130.114^\circ \quad b_2 = 8$$

$$C_2 = 14.886^\circ \quad C_2 = 2.687^\circ$$

$$B_2 = 180 - B_1$$

$$180 - 49.886$$

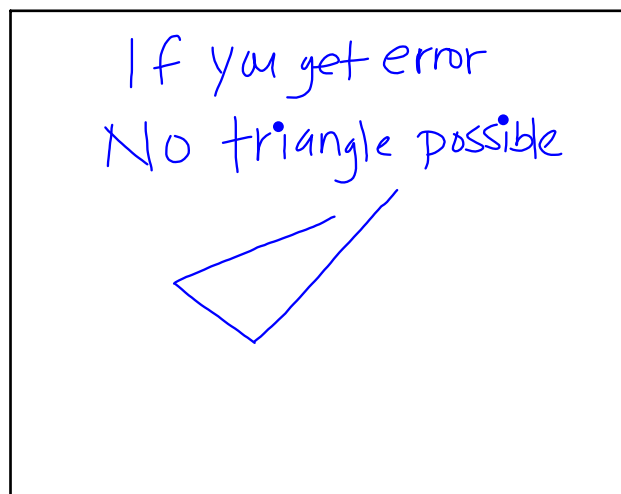
$$B_2 = 130.114$$

$$35 + 130.114$$

$$165.114 < 180$$

$$\begin{array}{r} 180 \\ - 165.114 \end{array}$$

Dec 1-10:30 AM



Dec 1-10:33 AM

#1

A

B

C = _____

$$C_2 = 180 - C_1$$

Dec 1-10:41 AM