Spiral Review

Find the sum or difference.

1. $180 - 68°12' - 12°47'$

$$\boxed{99°1'}$$

2. $70°14' + 92°36'$

$$\boxed{162°50'}$$

Calculate.

3. $\sin A = 39.81$

2nd sin (39.81)

$m\angle A =$ not possible

domain $-1 \le x \le 1$

4. $\sin 39°54'$

sin $(39°54')$

$= \boxed{.6414}$

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5. Solve the triangle. (Hint: to find missing sides use SOH CAH TOA)

A, 128, y, B, x, 73°, C
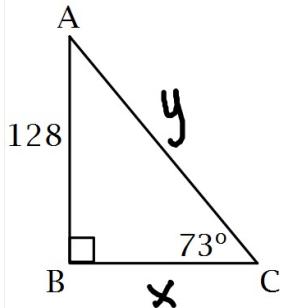
$$\tan 73 = \frac{128}{x}$$

$$x = \frac{128}{\tan 73}$$

$$\boxed{x = 39.13}$$

$$\sin 73 = \frac{128}{y}$$

$$y = \frac{128}{\sin 73}$$

$$\boxed{y = 133.8}$$

$$90 - 73 = 17°$$

$$\boxed{m\angle A = 17°}$$

Use the Law of Sines to solve an oblique triangle-triangles that have no right angles (AAS, ASA, *SSA).

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

*Use two fractions and set up a proportion.
**Cross multiply (make sure calculator is in degrees).

Students will be able to use the Law of Sines to solve the triangle.

Example 1: Use the Law of Sines to solve the triangle.

a.)
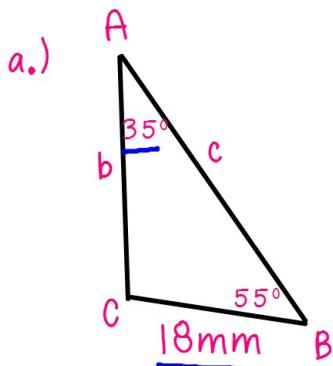
1.) Find the third angle.

$$180-35-55=\boxed{90°=m\angle C}$$

2.) Use Law of Sines to find missing sides.

$$\frac{18}{\sin 35}=\frac{c}{\sin 90}$$

$$\frac{18\sin 90}{\sin 35}=\frac{c\sin 35}{\sin 35}$$

$$\boxed{C=31.38}$$

$$\frac{18}{\sin 35}=\frac{b}{\sin 55}$$

$$\frac{18\sin 55}{\sin 35}=\frac{b\sin 55}{\sin 55}$$

$$\boxed{b=25.71}$$

If you have 2 sides and 1 angle: SSA

3 Possible Solutions could occur:
1) no triangle exists
2) 1 triangle
3) 2 triangles

Lets practice determining how many triangles exist!

How many triangles exist?

1.) $A = 76°$, $a = 34$, $b = 21$
$h = 20.38$ $\boxed{1 \triangle}$

$\sin 76 = \dfrac{h}{21}$
$h = 21 \sin 76$
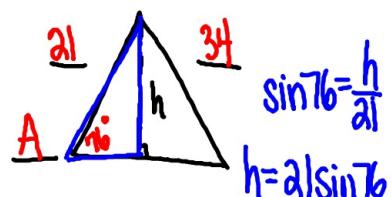
2.) $A = 110°$, $a = 125$, $b = 200$
$\sin 110 = \dfrac{h}{200}$ $h = 187.94$
$200 \sin 110 = h$ $\boxed{0 \triangle s}$

3.) $A = 60°$, $a = 9$, $c = 10$
$h = 10 \sin 60$ $\boxed{2 \triangle s}$
$h = 8.66$

b.) $A = 76°$, $a = 34$, $b = 21$

① $\dfrac{34}{\sin 76} = \dfrac{21}{\sin B}$ $\dfrac{34\sin B}{34} = \dfrac{21\sin 76}{34}$

[2nd] [sin] $(21 \sin (76) \div 34)$

$m\angle B = 36.82°$
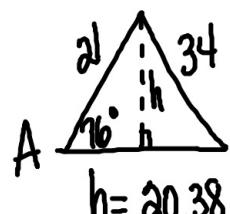
② $180 - 36.82 - 76$
$m\angle C = 67.18°$

③ $\dfrac{34}{\sin 76} = \dfrac{c}{\sin 67.18}$

$c = \dfrac{34 \sin 67.18}{\sin 76}$

$c = 32.30$

$h = 20.38$

$1\triangle$

c.) $A = 110°$, $a = 125$, $b = 200$

$0\triangle s$

no $\triangle s$ exist
or
no solution

d.) $A = 60°$, $a = 9$, $c = 10$ 2 $\triangle$s

① $\dfrac{9}{\sin 60} = \dfrac{10}{\sin C}$

$\sin C = \dfrac{10 \sin 60}{9}$

2nd Sin $(10 \sin (60) \div 9)$

$m\angle C_1 = 74.21°$

② $180 - 74.21 - 60$

$m\angle B_1 = 45.79°$

③ $\dfrac{9}{\sin 60} = \dfrac{b}{\sin 45.79}$

$b = 7.45$

① $180 - 74.21$

$m\angle C_2 = 105.79°$

② $180 - 105.79 - 60$

$m\angle B_2 = 14.21°$

③ $\dfrac{9}{\sin 60} = \dfrac{b}{\sin 14.21}$

$b_2 = 2.55$

Turn-in:
p. 410 (10, 16, 30)

HW:
p.410 (7-19, 25-29 odds)

(SAA or ASA)

Steps:
1. Find the 3rd angle. (180- ___- ___)
2. Find the remaining sides using the Law of Sines.

(SSA)

Steps:
1. Determine how many triangles you have.
2. Find an angle using the Law of Sines.
   (Hint: matching letters)
3. Find the 3rd angle (180- ___- ___)
4. Find the remaining side using Law of Sines.

** If you have 2 triangles,
1. Complete steps 1-4 for 1st triangle.
2. For triangle 2, take angle found in step 2 from 1st triangle and subtract it from 180.
3. Complete steps 3 & 4 with new angle information.