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**S9.5 Oblique Triangles; the Law of Sines**

Recall the Law of Sines

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

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

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**Case 1: ASA (angle side angle)**

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

$\frac{a}{\sin 24} = \frac{15}{\sin 81} = \frac{c}{\sin C}$

We can find C since  $C = 180 - 81 - 24$   
or  $C = 75^\circ$   
hence

$\frac{a}{\sin 24} = \frac{15}{\sin 81} = \frac{c}{\sin 75}$

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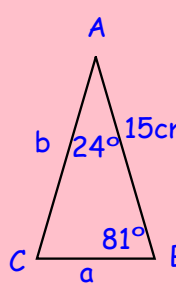
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Case 1: ASA (angle side angle)

$$\frac{a}{\sin 24} = \frac{b}{\sin 81} = \frac{15}{\sin 75}$$


$a = \frac{15 \sin 24}{\sin 75}$   
 $a \approx 6.3 \text{ cm}$   
 $b = \frac{15 \sin 81}{\sin 75}$   
 $b \approx 15.3 \text{ cm}$

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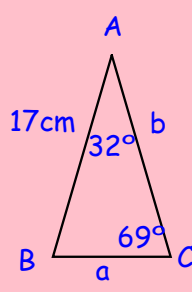
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Case 2: AAS (angle angle side)



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

$$\frac{a}{\sin 32} = \frac{b}{\sin B} = \frac{17}{\sin 69}$$

We can find B since  $B = 180 - 32 - 69$   
 or  $B = 79^\circ$   
 hence

$$\frac{a}{\sin 32} = \frac{b}{\sin 79} = \frac{17}{\sin 69}$$

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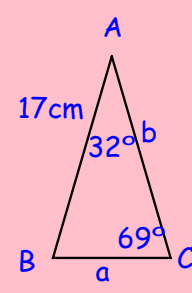
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Case 2: AAS (angle angle side)



$$\frac{a}{\sin 32} = \frac{b}{\sin 79} = \frac{17}{\sin 69}$$

$a = \frac{17 \sin 32}{\sin 69}$   
 $a \approx 9.6 \text{ cm}$   
 $b = \frac{17 \sin 79}{\sin 69}$   
 $b \approx 17.9 \text{ cm}$

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Exit Ticket: Complete & hand-in. §9.5 #29,30

Homework:

§9.5 #28-35 Will be collected Monday.

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