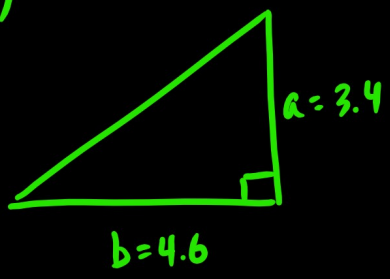
WARMUP

What method would you use to solve each triangle?

1)



SOHCAHTOA
Law of Cosines
Pyth. then Sines

2) $a = 3.5$ $b = 6.3$ $c = 7.1$

Cosines

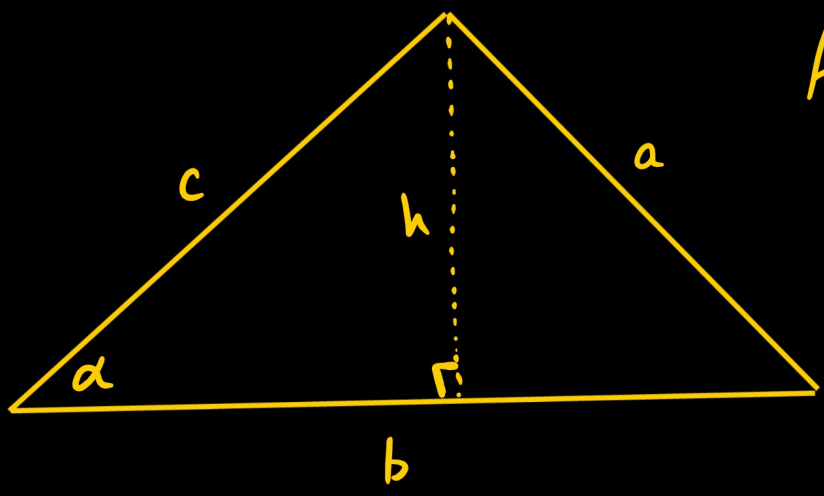
3) $a = 5.3$ $c = 7.5$ $\beta = 63^\circ$

Cosines

4) $\alpha = 38^\circ$ $\beta = 65^\circ$ $b = 6.3$

Sines

Section 7.4 Area of Triangles



$A = \frac{1}{2}bh \Rightarrow A = \frac{1}{2}bc\sin\alpha$

$\sin\alpha = \frac{h}{c}$

$c\sin\alpha = h$

$A = \frac{1}{2}ac\sin\beta$

$A = \frac{1}{2}ab\sin\gamma$

ex: Find area if $a = 8$, $b = 6$, $\gamma = 30^\circ$

$A = \frac{1}{2}ab\sin\gamma$

$A = \frac{1}{2}\cdot 8\cdot 6\sin 30^\circ = 12$

Heron's Formula ⇒ use if SSS

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

where $s = \frac{1}{2}(a+b+c)$

ex: $a = 4, b = 5, c = 7$

$$s = \frac{1}{2}(4+5+7) = \frac{1}{2} \cdot 16 = 8$$

$$A = \sqrt{8(8-4)(8-5)(8-7)}$$

$$= \sqrt{8 \cdot 4 \cdot 3 \cdot 1}$$

$$= \sqrt{96} \approx 9.8$$

p561
3, 7, 11, 23, 27