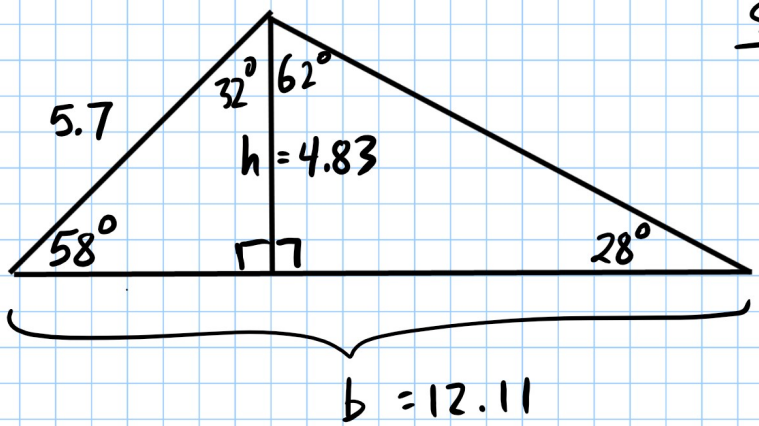
# WARMUP

Find the area of this triangle:

$$\frac{\sin 90}{5.7} = \frac{\sin 58^\circ}{h}$$

$h = 4.83$

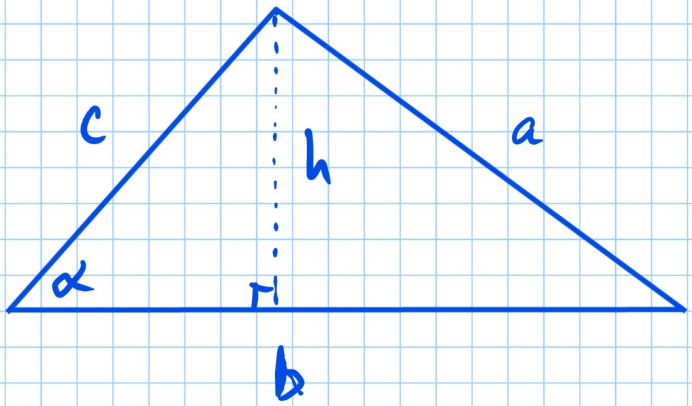



$$\frac{\sin 94^\circ}{b} = \frac{\sin 28^\circ}{5.7}$$

$b = 12.11$

$$A = \frac{1}{2}(12.11)(4.83) = 29.25$$

## Section 7.4 Area of Triangles




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

$$h = c\sin\alpha$$

$A = \frac{1}{2}bh \Rightarrow$

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

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

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

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

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

$$= 12$$

## Heron's Formula ⇒ use if SSS

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

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

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

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

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

$$A = \sqrt{8 \cdot 4 \cdot 3 \cdot 1} = \sqrt{96} \approx 9.8$$

p561

3, 7, 11, 23, 27