

6.1-6.2 AREAS OF TRIANGLES

Area of a triangle formulas: $\text{Area} = \frac{1}{2}bh$ (if you know the length of the base and the height)

$$\text{Area} = \frac{1}{2}bc \sin A$$

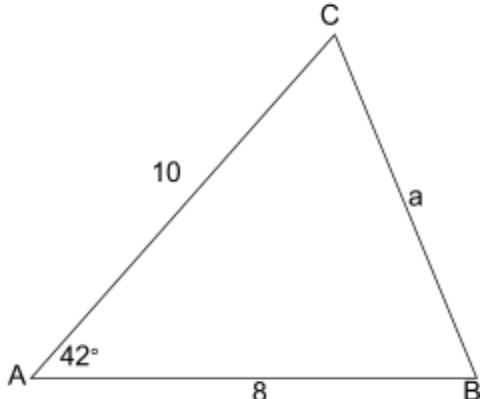
$$\text{Area} = \frac{1}{2}ac \sin B$$

$$\text{Area} = \frac{1}{2}ab \sin C$$

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)} \text{ where } s = \frac{a+b+c}{2}$$

(if you know the measures of all three sides)

Example 1: Find the area of triangle ABC $A = 42^\circ$ $b = 10 \text{ cm}$ $c = 8 \text{ cm}$

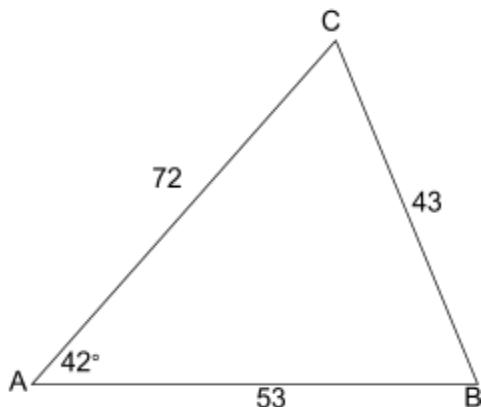


$$\text{Area} = \frac{1}{2}bc \sin A$$

$$\text{Area} = \frac{1}{2} \cdot 10 \cdot 8 \cdot \sin 42^\circ$$

$$\text{Area} \approx 26.8 \text{ cm}^2$$

Example 2: Find the area of triangle ABC $a = 43$ $b = 72$ $c = 53$



$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)} \text{ where } s = \frac{a+b+c}{2}$$

$$s = \frac{43+72+53}{2} = 84$$

$$\text{Area} = \sqrt{84(41)(12)(31)} \approx 1131.9$$

Homework: p.414 #19-24 all and p.421 #27-36 all