

Find an angle: Given Area, a and b

$$A = 62 \text{ u}^2 \quad a = 12 \quad b = 15 \quad \text{find } C$$

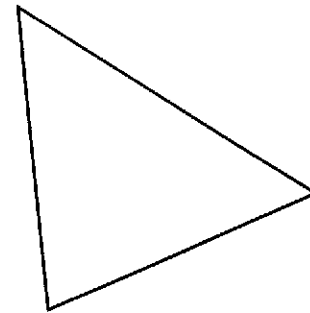
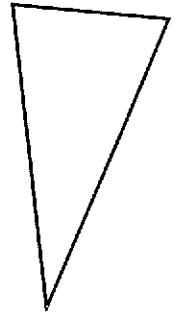
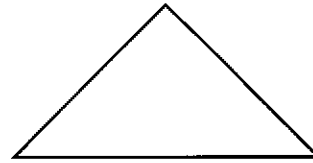
$$\text{Formula} = A = \frac{1}{2}(a)(b) \sin C$$

- 1) $62 = \frac{1}{2}(12)(15) \sin C$
 - 2) $62 = 90 \sin C$
 - 3) $\frac{62}{90} = \frac{90}{90} \sin C$
 - 4) $\sin^{-1}(62/90)$
 - 5) $\angle C = 43.5$
- 1) Plug in values
 - 2) multiply terms in front of sin.
 - 3) Divide by # in front of sin
 - 4) take inverse to find angle

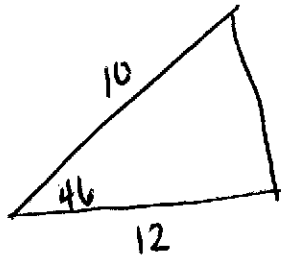
Area of a Triangle

Using

SINE



Find Area: Given a, b and $\angle C$



Where a and b are sides and $\angle C$ is the included angle

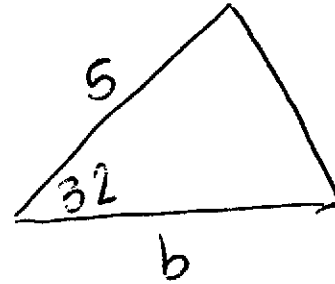
Formula

$$A = \frac{1}{2}(a)(b)\sin C$$

$$A = \frac{1}{2}(10)(12)\sin 46$$

$$A = 43.2 \text{ units}^2$$

Find a side: Given Area, a and $\angle C$



$$\text{Area} = 26 \text{ units}^2$$

$$\text{Formula: } A = \frac{1}{2}(a)(b)\sin C$$

$$1) 26 = \frac{1}{2}(5)(b)\sin 32 \quad 1) \text{ Plug in given values.}$$

$$\downarrow$$
$$\times 2$$
$$2) 52 = 5 \sin 32 \cdot b$$

2) multiply both sides by 2 to eliminate $\frac{1}{2}$

$$3) \frac{52}{(5 \sin 32)} = b$$

3) Divide both sides by $(5 \sin 32)$, be sure to put in parenthesis

$$b = 19.6$$