**Trigonometry:**

If you want a **side and have 2 sides** = use the Pythagorean Theorem

a2 + b2 = c2  == if you have the two legs(shorter sides) and

 ex. 82+ 62= c2

a x 8 64 + 36 = c2

 6 $\sqrt{100}$ = $\sqrt{c^{2}}$

 b 10 = c

c2- b2 = a2 if you have the hypotenuse (c ) ex. 5 52- 42 = b2

 4 25 – 16 = b2

 x c x $\sqrt{9}$ = $\sqrt{b^{2}}$

 3 = b

 b

If you have **a side and an angle** or **two sides and want an angle** you need to use SOH CAH TOA

1. Label the sides ( H, O and A)
2. Circle what you have and what you want H
3. Choose the formula from SOH CAH TOA O H A
4. Write the formula
5. Plug in what you know A O
6. Rearrange the formula to solve using the rules below

 \*\*\*O and A change depending on the

 angle used

|  |  |  |
| --- | --- | --- |
| To find the numerator (top) | To find the denominator (bottom) | To find the angle |
| ex. Cos 43 = $\frac{x}{7}$ | ex. Tan 30 = $\frac{4}{x}$ | ex. Sin x = $\frac{2}{5}$ |
| Multiply both sides by the bottom | Switch Tan 30 and x | Divide 2 by 5 |
| 7 x Cos 43 = x | x = $\frac{4}{Tan 30}$ | Press shift and sin |
| Calculate == 7 x Cos 43 | Calculate -- 4÷ Tan 30 | \*\* on some calculators you need to press shift SIN(2÷5) |