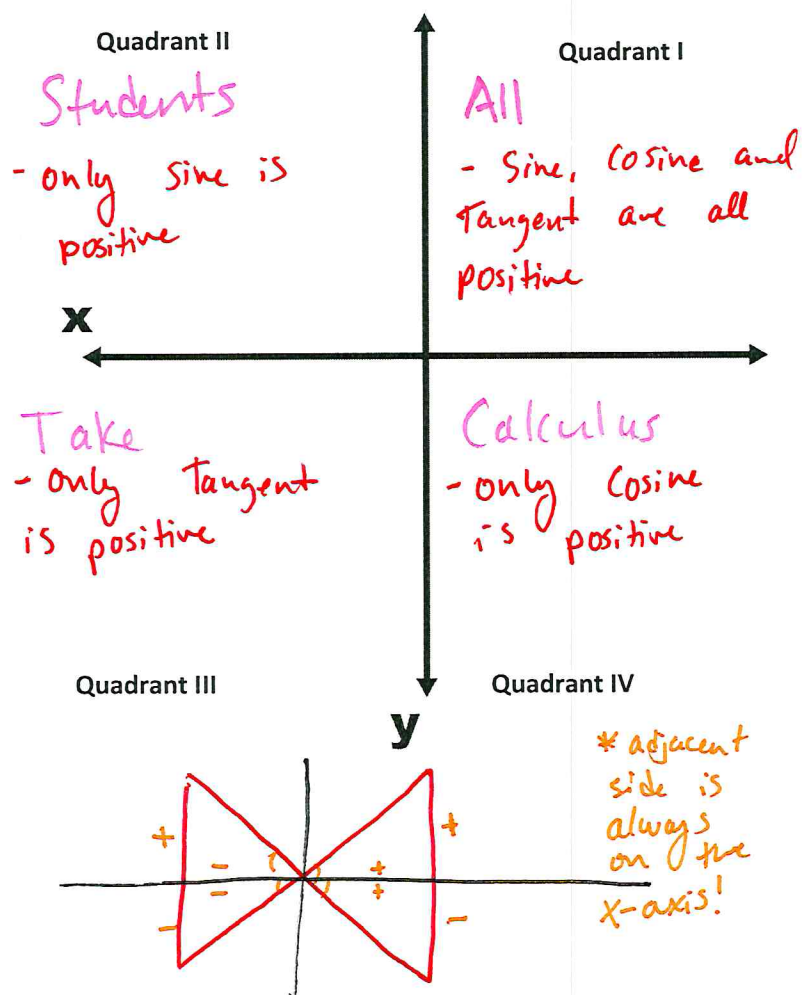


Name: Key Hour: _____ Date: _____

Solving Trig Equations Notes

Do you remember what the signs of each trig ratio are in each quadrant?



Steps for Solving Trig Equations:

- Determine the TWO Quadrants that satisfy the given equation
- Sketch and label the sides of the two triangles
- Determine the reference angles
- Use the reference angle to solve the equation.

Using the Reference Angle to Find the Value of Theta: → think opposite of finding the reference angle

- Quadrant I: Do nothing! The reference angle is theta.
- Quadrant II: $\theta = 180^\circ - \text{reference angle}$
- Quadrant III: $\theta = 180^\circ + \text{reference angle}$
- Quadrant IV: $\theta = 360^\circ - \text{reference angle}$

SOH

CAH

TOA

ExamplesDIRECTIONS: Find BOTH of the solutions for θ , where $0^\circ \leq \theta \leq 360^\circ$.

1) $\sin \theta = \frac{\sqrt{3}}{2}$ ← opp
← hyp

Sine is positive
in QI and QIIBased on the sides
I know that this
is a 30° - 60° - 90° triangle

2) $\cos \theta = \frac{-1}{2}$ ← adj
← hyp

Cosine is
negative in
QII and QIIIBased on the
sides this is
also a 30° - 60° - 90° triangle

3) $\tan \theta = \frac{1}{1}$ ← opp
← adj

Tangent is positive in
QI and QIIIBased on the sides
I know that this
is a 45° - 45° - 90° triangle

4) $\cos \theta = \frac{1}{\sqrt{2}}$ (we changed
this to positive)
← adj
← hyp

Cosine is positive in
QI and QIVBased on the sides
I know this is
a 45° - 45° - 90°
triangle.