TRIG RATIOS PART 2

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Examples:

- $\sin 240^\circ = -\frac{1}{2}$
- $\cos 240 = -1/2$
- $\tan 315 = -1$

Q1: sinθ -> +
cosθ, tanθ -> −

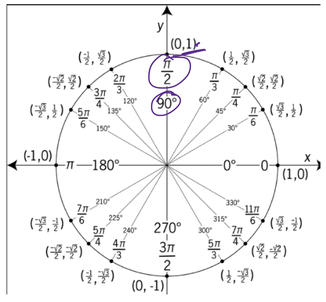
Q1: cos, sin, tan of θ is positive

Q3: tanθ -> +
sinθ, cosθ -> −

Q4: cosθ -> +
sin, tan -> −

Unit circle:

- simplifies computation of trig ratios
- X-coordinates of a point on unit circle represen coordinate represents sinθ



90° -> (0,1)

(cosθ, sinθ)

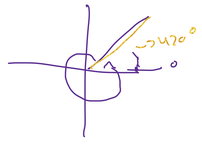
(cos90, sin90)

(0, 1)

Negative and co-terminal angles:

- Co-terminal angles share same terminal arm in standard position
- Negative angles are measured clockwise from positive X-axis
- To find coterminal angles:
  - Degrees: Add and subtract 360°
  - Radians: Add and subtract 2π

60°

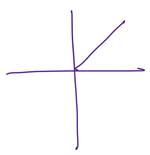


60° +360° = 420° +360 = 770°

60 -360 = -300° -360 = -660°

60° -> -60

Coterminal angles of 30° -> $0 \leq \theta \leq 720^\circ$



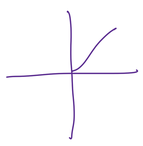
30+360 = 390° + 360

30 -360 = -330°

390
360
750

Coterminal angle of 20° -> $-360 \leq \theta \leq 420^\circ$

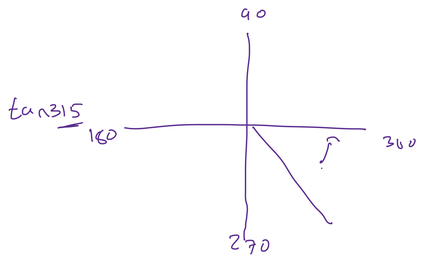
380°, -340°



20+360 = 380° +360

20-360 = -340 -340 > -360

360
+360
420



270 ≤ 315 ≤ 360

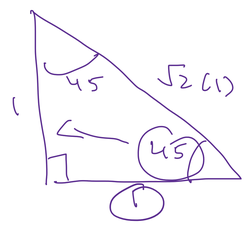
cosθ -> +

sinθ, tanθ -> −

315 - 360 = -45

tan(-45) -> -1

tan(45) -> 1



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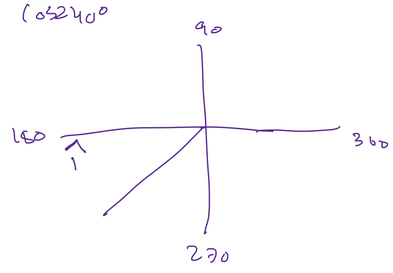
tan45 = Opp/Adj

= 1/1

= 1

cos240°



180 ≤ 240 ≤ 270

cos240 -> −

180 - 240 = -60

cos(-60) -> -1/2

cos(60) -> 1/2

sinθ -> −

sin210 -> ←

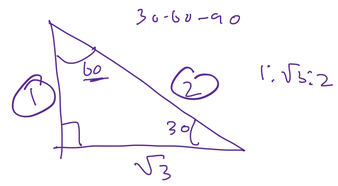
180 - 210 = -30

sin240 -> sin(-30)

sin(30)

1/2

sin(-30) = -1/2



sin30 = opp/hyp

sin30 = 1/2

cos60 = Adj/hyp

= 1/2