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MATH@TD

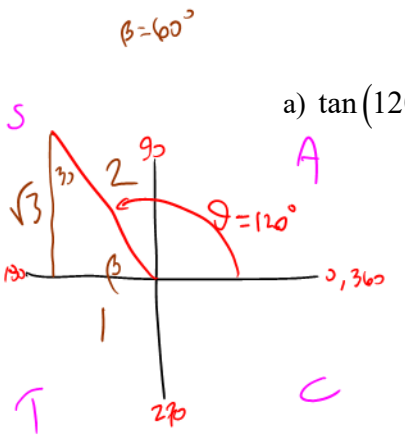
MCR3U

Name Solutions

Unit 5 *– Trigonometric Ratios*
Speed Quiz (Practice 3): Angles of Rotation and Trig Ratios **(No Calculators!!)**

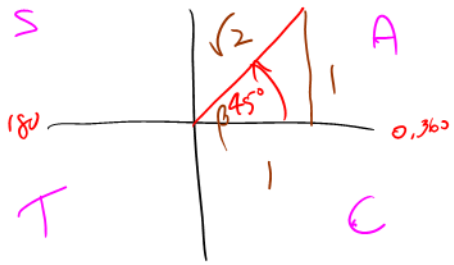
1. Draw the **Angle of Rotation**. Determine the **Related Acute Angle**. Determine the trig ratios exactly (using SOH CAH TOA and CAST) *(1 point each)*

a) $\tan(120^\circ) = -\frac{\sqrt{3}}{1}$

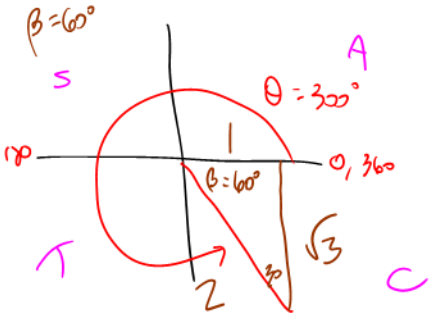


b) $\sec(45^\circ) = +\frac{\sqrt{2}}{1}$

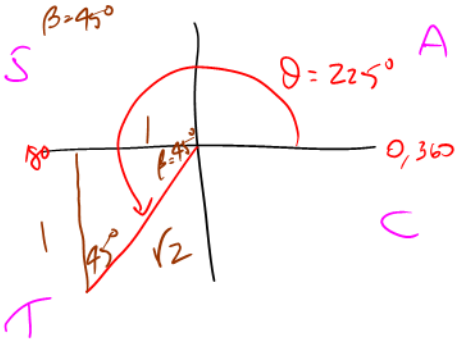
reciprocal of cosine ⇒ $\frac{\text{hyp}}{\text{adj}}$



c) $\sin(300^\circ) = -\frac{\sqrt{3}}{2}$

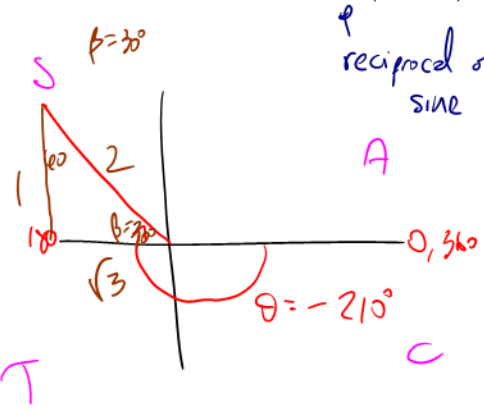


d) $\cos(225^\circ) = -\frac{1}{\sqrt{2}}$



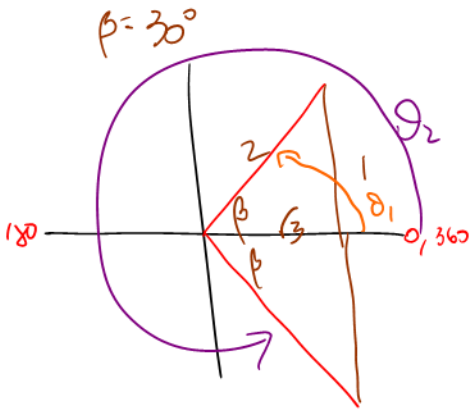
e) $\csc(-210^\circ) = +\frac{2}{1}$

reciprocal of sine ⇒ $\frac{\text{hyp}}{\text{opp}}$



2. For $0^\circ \le \theta \le 360^\circ$, determine the angles of rotation given the trig ratio: (*2 marks each*)

a) $\cos(\theta) = \frac{\sqrt{3}}{2}$ Q1, Q4

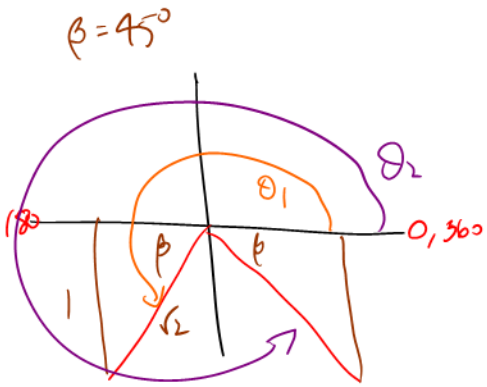


$\theta_1 = \beta = 30^\circ$

$\theta_2 = 360 - \beta$

$= 360 - 30 = 330^\circ$

b) $\sin(\theta) = -\frac{1}{\sqrt{2}}$ Q3, Q4



$\theta_2 = 360 - \beta$

$= 360 - 45$

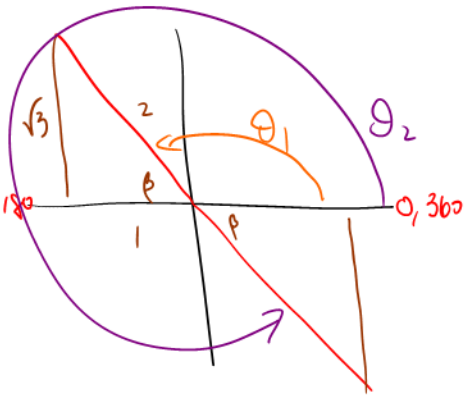
$= 315^\circ$

$\theta_1 = 180 + \beta$

$= 180 + 45$

$= 225^\circ$

c) $\tan(\theta) = -\sqrt{3}$ Q2, Q4



$\theta_1 = 180 - \beta$

$= 180 - 60$

$= 120^\circ$

$\theta_2 = 360 - \beta$

$= 360 - 60$

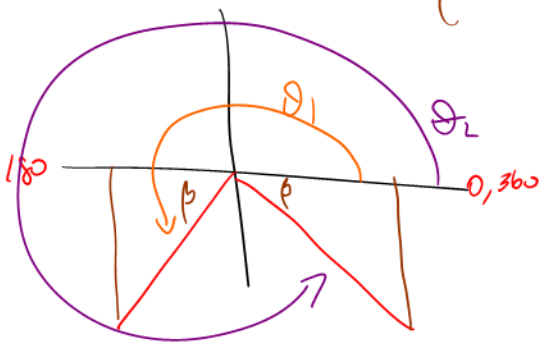
$= 300^\circ$

d) $\sin(\theta) = -0.5647$ (use a calculator) Q3, Q4

$\sin(\beta) = +0.5647$

$\Rightarrow \beta = \sin^{-1}(0.5647)$

$\doteq 34.4^\circ$



$\theta_1 = 180 + \beta$

$\doteq 180 + 34.4^\circ$

$\doteq 214.4^\circ$

$\theta_2 = 360 - \beta$

$= 360 - 34.4$

$= 325.6^\circ$