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MATH@TD

MCR3U

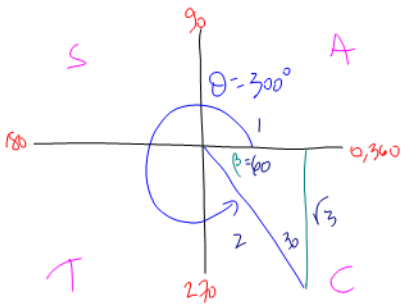
Name Solutions

Unit 5 *– Trigonometric Functions*

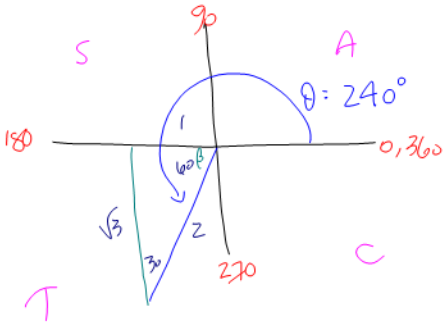
Speed Quiz (Practice 2): Angles of Rotation, Trig Ratios and Special Triangles **(No Calculators!!)**

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)*

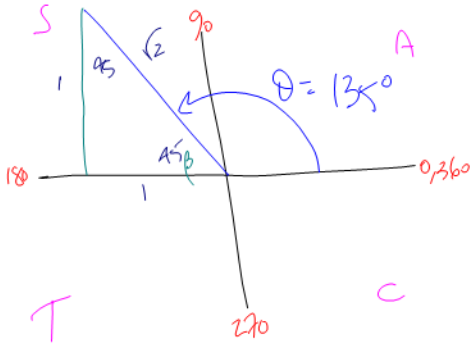
a) $\tan(300^\circ) = -\frac{\sqrt{3}}{1}$



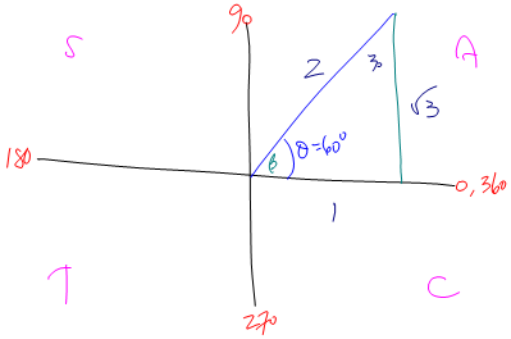
b) $\sin(240^\circ) = -\frac{\sqrt{3}}{2}$



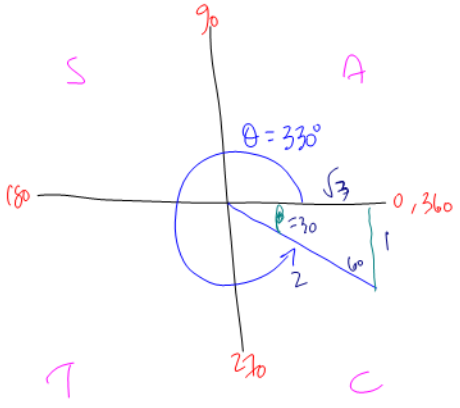
c) $\cos(135^\circ) = -\frac{1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$



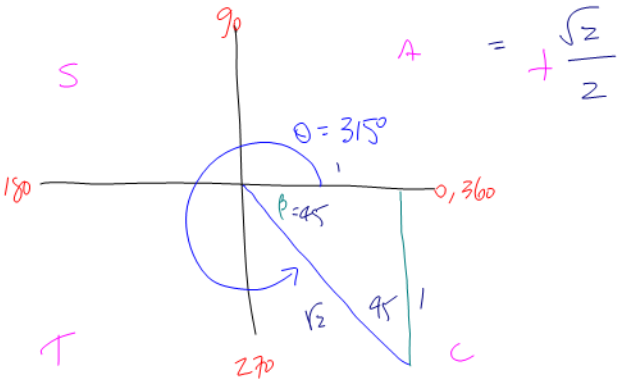
d) $\tan(60^\circ) = +\frac{\sqrt{3}}{1}$



e) $\sin(330^\circ) = -\frac{1}{2}$

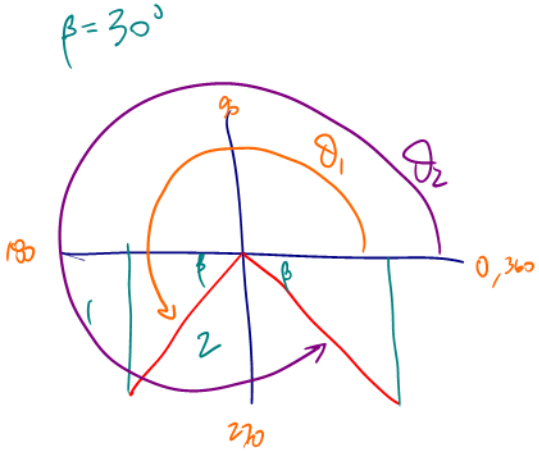


f) $\cos(315^\circ) = +\frac{1}{\sqrt{2}} = +\frac{\sqrt{2}}{2}$



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

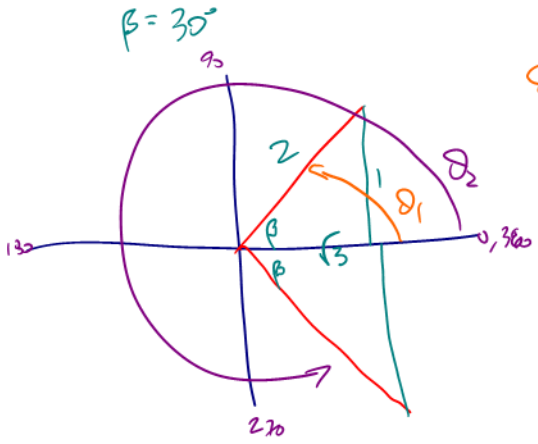
a) $\sin(\theta) = -\frac{1}{2}$ Q3 Q4



$\theta_1 = 180 + \beta$
$= 180 + 30$
$= 210^\circ$

$\theta_2 = 360 - \beta$
$= 360 - 30$
$= 330^\circ$

b) $\cos(\theta) = \frac{\pm\sqrt{3}}{2}$ Q1 Q4

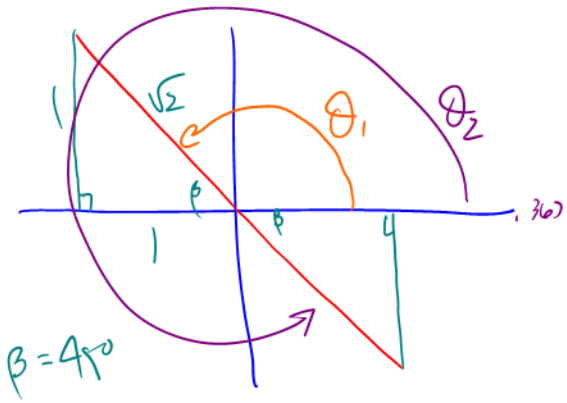


$\theta_1 = \beta = 30^\circ$

$\theta_2 = 360 - \beta$
$= 360 - 30$
$= 330^\circ$

tan is negative in Q2, Q4

c) $\tan(\theta) = -1$ Q2, Q4



$\theta_1 = 180 - \beta$
$= 180 - 45$
$= 135^\circ$

$\theta_2 = 360 - \beta$
$= 360 - 45$
$= 315^\circ$