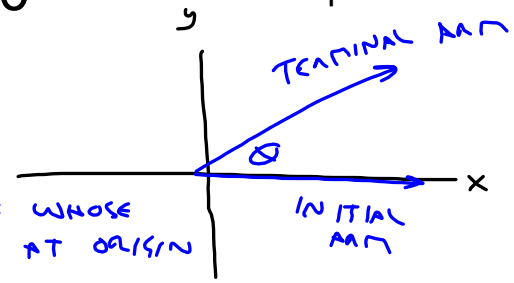
5.3 Trig of Angles>90

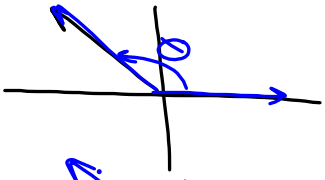
Apr 29

Standard position – AN ANGLE WHOSE VERTEX IS AT ORIGIN



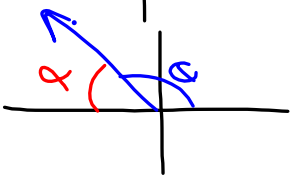
Principal angle

$0° \le \theta \le 360°$

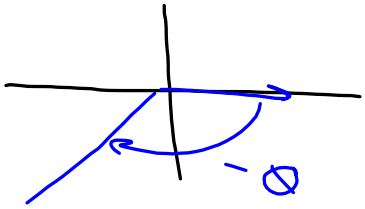


Related acute angle

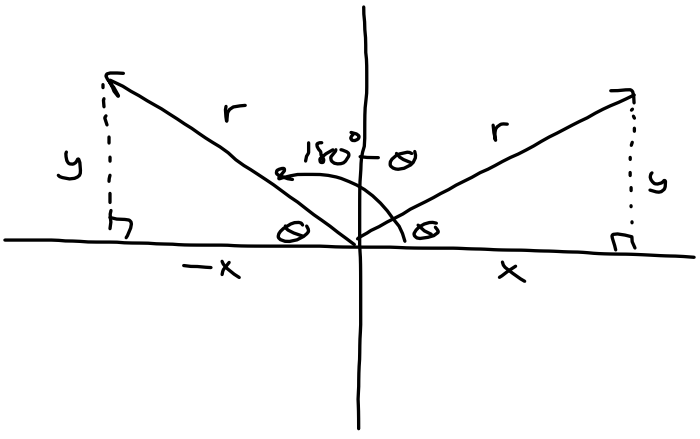
$0 \le \alpha \le 90°$



Negative angle



Related Angle Identities

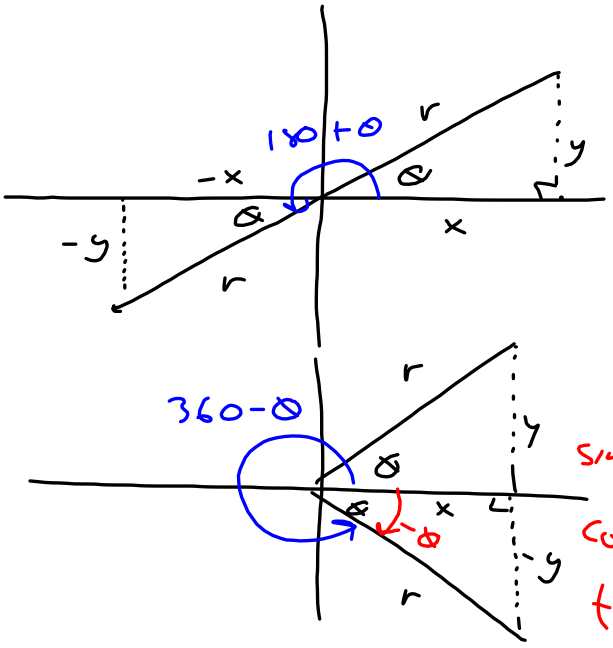


$\sin(180-\theta) = \frac{y}{r} = \sin\theta$

$\sin(180-\theta) = \sin\theta$

$\cos(180-\theta) = -\frac{x}{r} = -\cos\theta$

$\tan(180-\theta) = \frac{y}{-x} = -\tan\theta$



$\sin(180+\theta) = -\frac{y}{r} = -\sin\theta$

$\cos(180+\theta) = -\frac{x}{r} = -\cos\theta$

$\tan(180+\theta) = \frac{-y}{-x} = \frac{y}{x} = \tan\theta$

$\sin(-\theta) = \sin(360-\theta) = -\frac{y}{r} = -\sin\theta$

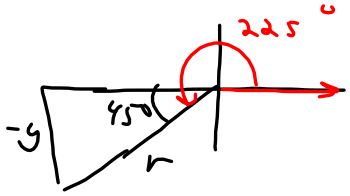
$\cos(-\theta) = \cos(360-\theta) = \frac{x}{r} = \cos\theta$

$\tan(-\theta) = \tan(360-\theta) = -\frac{y}{x} = -\tan\theta$

ex. WRITE EACH AS A TRIG RATIO OF THE RELATED ACUTE ANGLE.

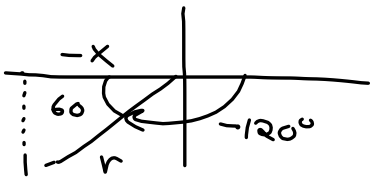
(a) $\sin 225^\circ$

$= -\sin(45)$

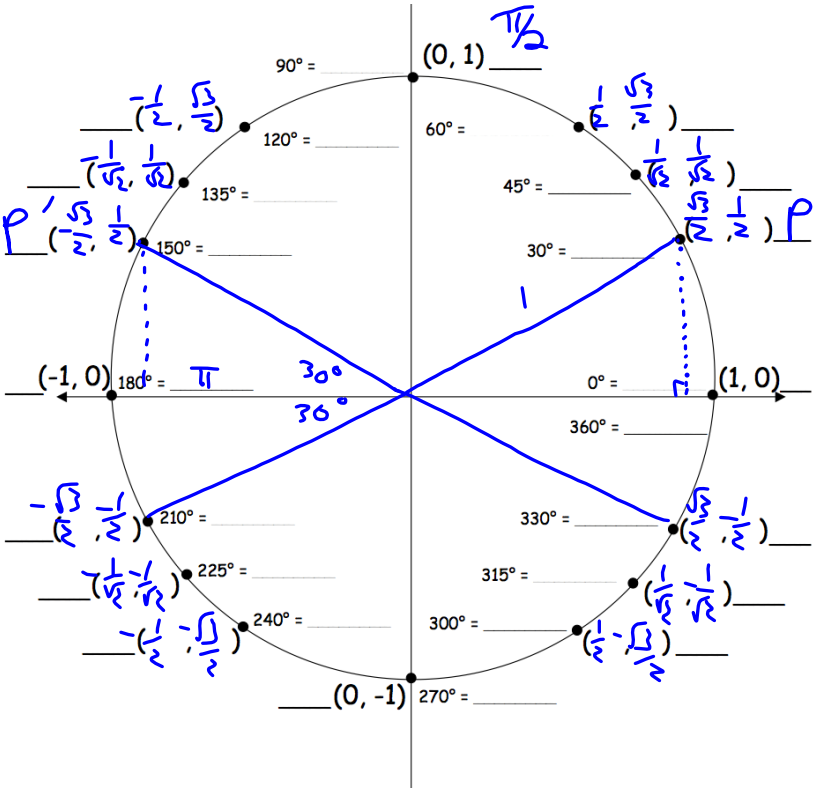


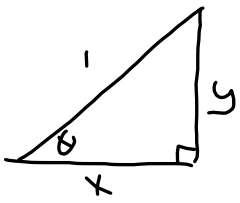
b) $\cos(-120^\circ)$

$= -\cos(60)$



The Unit Circle





$\cos\theta = \frac{x}{1}$

$\sin\theta = \frac{y}{1}$

$(x, y) = (\cos\theta, \sin\theta)$

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