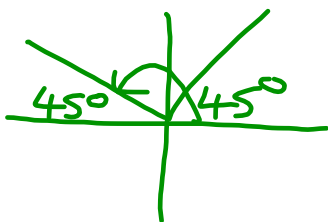


Solutions

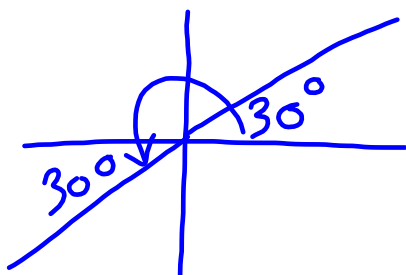
1. State all the angles between 0° and 360° that make each equation true.

a) $\sin 45^\circ = \sin 135^\circ$



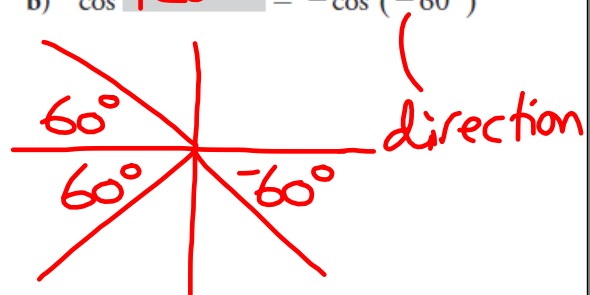
$$180 - 45 = 135^\circ$$

c) $\tan 30^\circ = \tan 210^\circ$

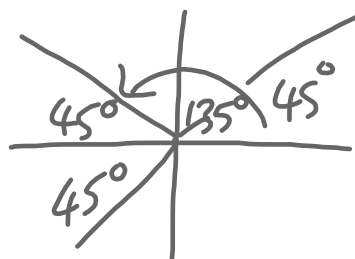


$$180 + 30 = 210^\circ$$

b) $\cos 120^\circ \text{ or } 240^\circ = -\cos(-60^\circ)$



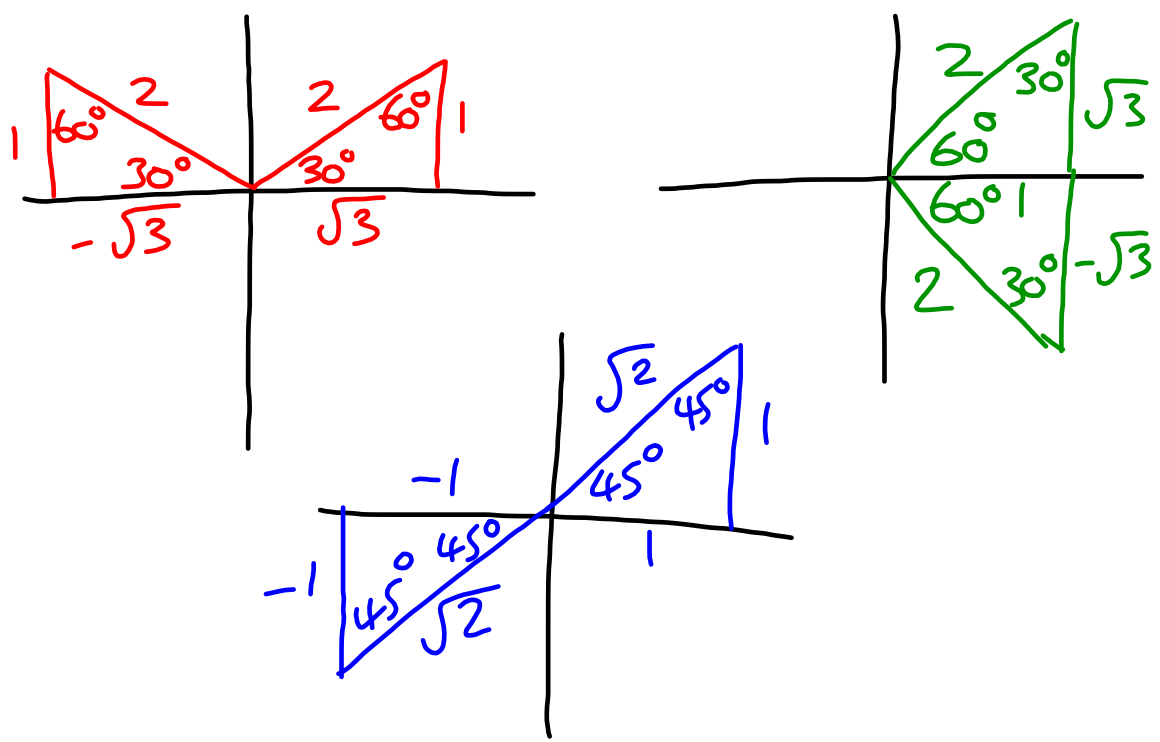
d) $\tan 135^\circ = -\tan 45^\circ \text{ or } 225^\circ$



$$180 + 45 = 225^\circ$$

2. Using the special triangles from Lesson 5.2, sketch two angles in the Cartesian plane that have the same value for each given trigonometric ratio.

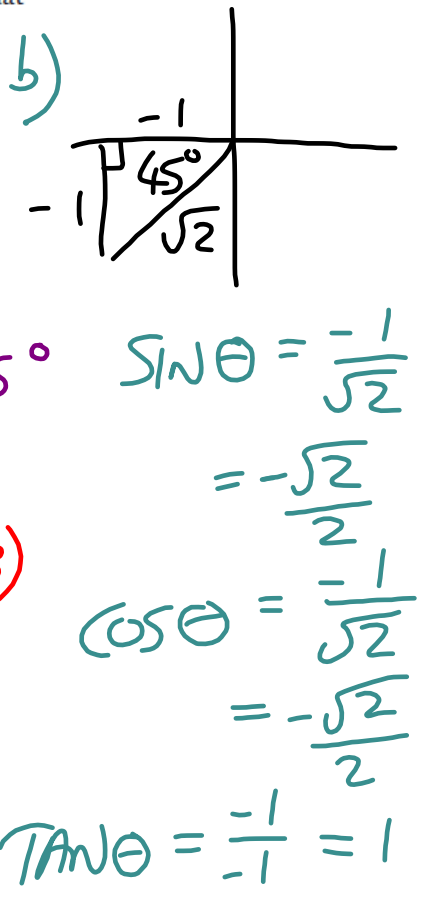
- a) sine
- b) cosine
- c) tangent



3. Sylvie drew a special triangle in quadrant 3 and determined that $\tan(180^\circ + \theta) = 1$.

- a) What is the value of angle θ ?
- b) What would be the exact value of $\tan \theta$, $\cos \theta$, and $\sin \theta$?

a) $\tan(180 + \theta) = 1$
 $180 + \theta = \tan^{-1}(1)$
 $180 + \theta = 45^\circ \text{ or } 225^\circ$
↑
 Extraneous (not in quadrant 3)
 $180 + \theta = 225$
 $\theta = 45^\circ$



4. Based on your observations, copy and complete the table below to summarize the signs of the trigonometric ratios for a principal angle that lies in each of the quadrants.

Trigonometric Ratio	Quadrant			
	1	2	3	4
sine	+	+	-	-
cosine	+	-	-	+
tangent	+	-	+	-