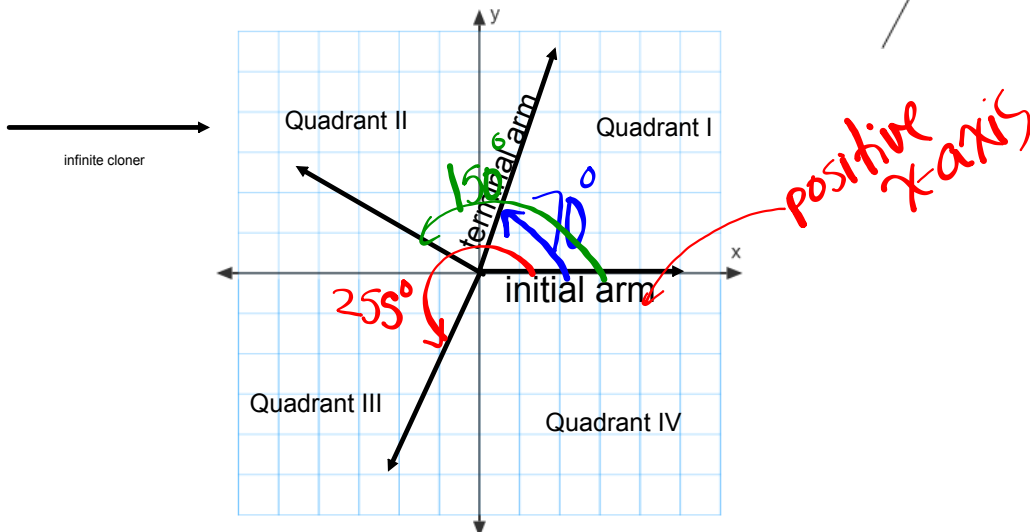
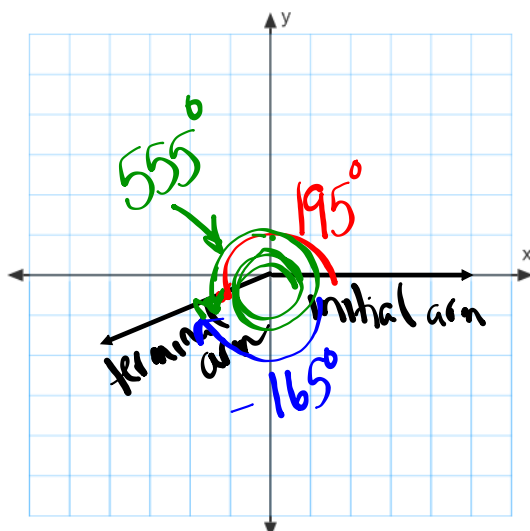


# Angles Larger than $180^\circ$



## Coterminal Angles



If the angle is  $195^\circ$ , name another angle coterminal to it.

$-165^\circ$   $555^\circ$

$-525^\circ$   $915^\circ$

Determine the principal angle to  $195^\circ$ . A principal angle is a positive angle between  $0^\circ$  and  $360^\circ$ .

$195^\circ$

# Principal Angles

Determine the principal angles for each of the following:

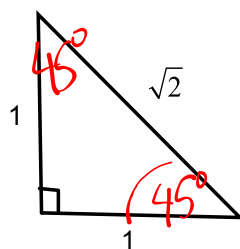
(a)  $670^\circ$   $310^\circ$

(b)  $1450^\circ$   $10^\circ$

(c)  $-1245^\circ$   $195^\circ$

## Special Triangles

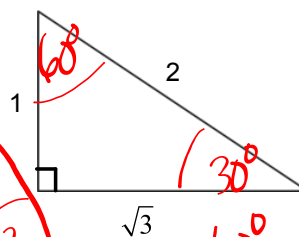
Special Triangle #1



$$\begin{aligned}\sin 45^\circ &= \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2} \\ \cos 45^\circ &= \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \\ \tan 45^\circ &= \frac{1}{1} = 1\end{aligned}$$

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Special Triangle #2

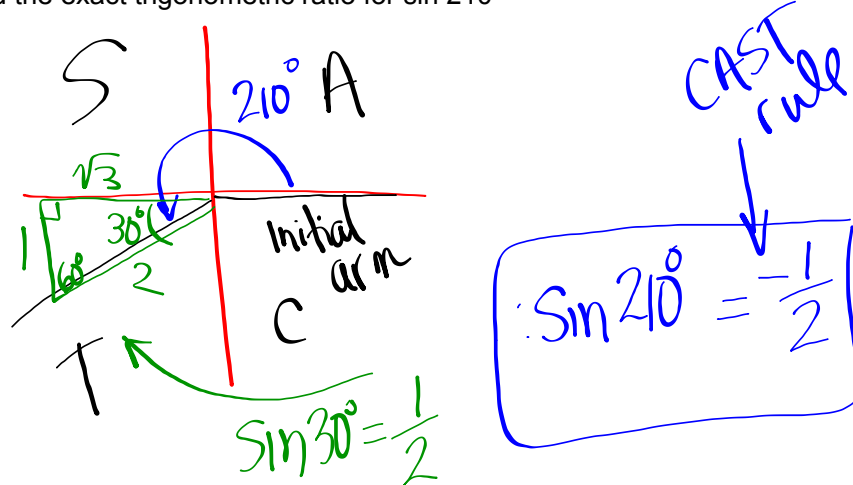


$$\begin{aligned}\sin 60^\circ &= \frac{\sqrt{3}}{2} \\ \cos 60^\circ &= \frac{1}{2} \\ \tan 60^\circ &= \frac{\sqrt{3}}{1} = \sqrt{3}\end{aligned}$$

# Finding Exact Trig Ratios

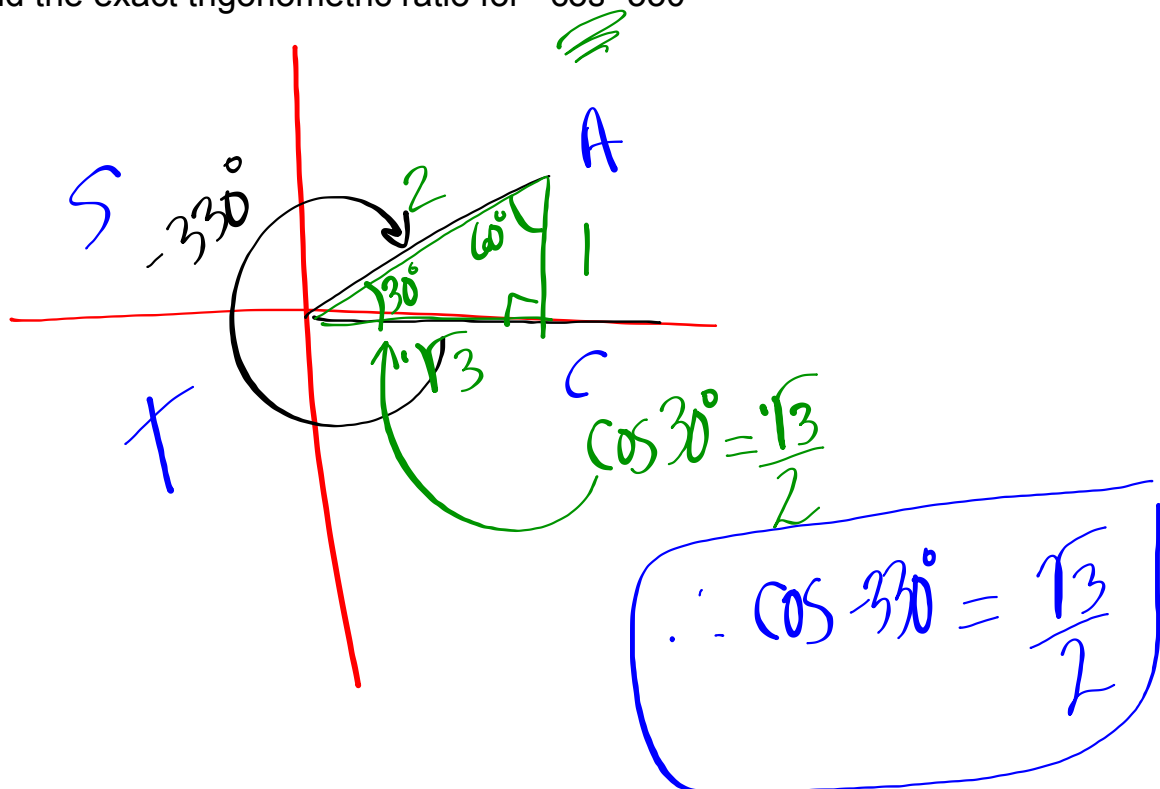
Example #1

Find the exact trigonometric ratio for  $\sin 210^\circ$



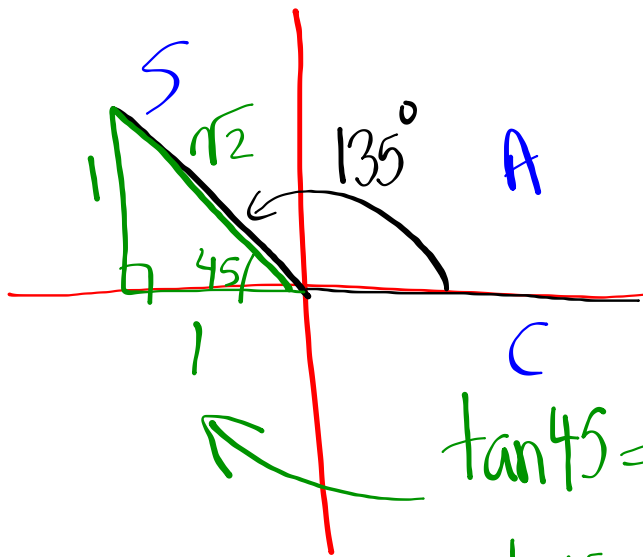
Example #2

Find the exact trigonometric ratio for  $\cos -330^\circ$



Example #3

Find the exact trigonometric ratio for  $\cot 135^\circ$



$$\tan 45 = \frac{1}{1}$$
$$\therefore \cot 45 = \frac{1}{1}$$

$$\therefore \cot 135^\circ = -\frac{1}{1}$$

$$\boxed{\cot 135^\circ = -1}$$

- 4) Find the exact trigonometric ratio for  $\sin(-420^\circ)$
- 5) Find the exact trigonometric ratio for  $\cos 315^\circ$
- 6) Find the exact trigonometric ratio for  $\tan(-150^\circ)$
- 7) Find the exact trigonometric ratio for  $\sin 225^\circ$
- 8) Find the exact trigonometric ratio for  $\cos(-120^\circ)$
- 9) Find the exact trigonometric ratio for  $\cot 390^\circ$
- 10) Find the exact trigonometric ratio for  $\sec(-300^\circ)$

