

SECTION 7.4 NOTES

SINE AND COSINE

Use a calculator to find the following values.

CHECK your **MODE**: is measured in either radians or degrees

-Press the **MODE** key

-Arrow down to degree or radian (depending on problem)

-Highlight the correct mode and then press **enter**

-Exit to the main screen by pressing **Clear** or **Quit**

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Examples

1) $\sin 42^\circ$

 $.6691$

2) $\sin 37.3^\circ$

 $.6060$

3) $\cos 160^\circ$

 $-.9397$

4) $\cos 17^\circ 20'$

$$17 + \frac{20}{60} = 17.3\bar{3}$$

$$\boxed{.9546}$$

5) $\sin 2.3$

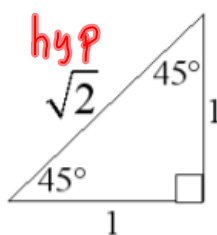
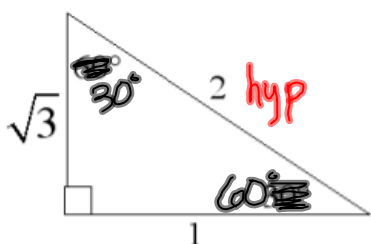
 $.7457$

6) $\cos 1.2$

 $.3624$

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SPECIAL ANGLES using 30-60-90 Δ 's and 45-45-90 Δ 's



$$\sin \theta = \frac{\text{opposite}}{\text{hyp.}}$$

$$\cos \theta = \frac{\text{adjacent}}{\text{hyp.}}$$

SOH - CAH - TOA

Examples

1) $\cos 60^\circ = \frac{\text{adj}}{\text{hyp}} = \frac{1}{2}$

2) $\sin 30^\circ = \frac{\text{opp}}{\text{hyp}} = \frac{1}{2}$

3) $\sin 45^\circ = \frac{\text{opp}}{\text{hyp}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

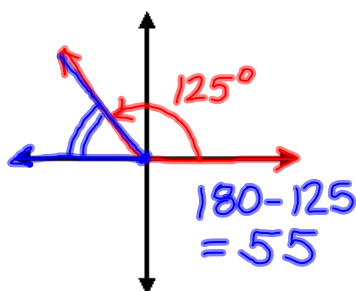
4) $\cos 30^\circ = \frac{\text{adj}}{\text{hyp}} = \frac{\sqrt{3}}{2}$

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REFERENCE ANGLE: an acute angle formed with the x-axis and terminal side

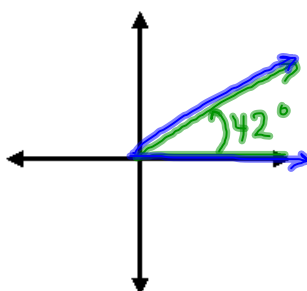
EXAMPLES

1) 125°



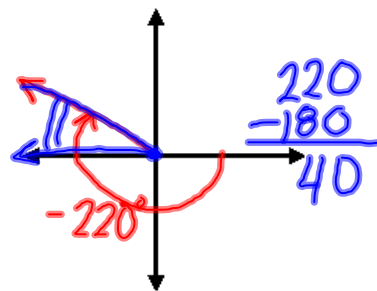
Ref $\angle = 55^\circ$

2) 42°



Ref $\angle = 42^\circ$

3) -220°

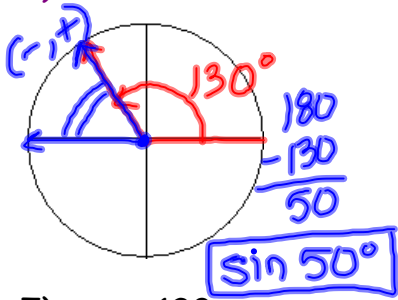


Ref $\angle = 40^\circ$

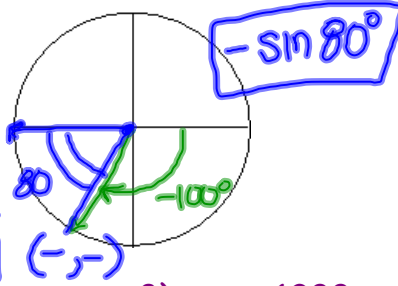
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Express the following in terms of a reference angle.

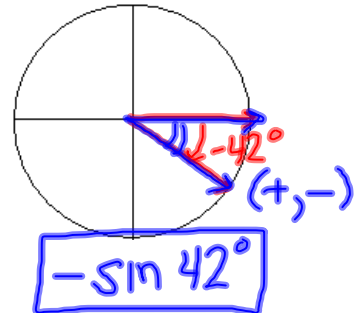
4) $\sin 130^\circ$



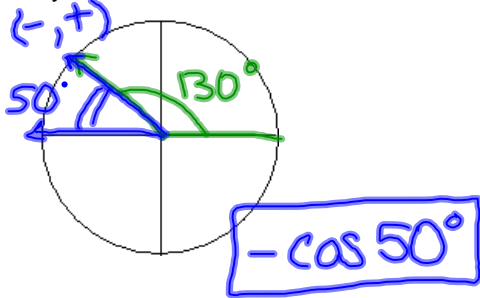
5) $\sin(-100^\circ)$



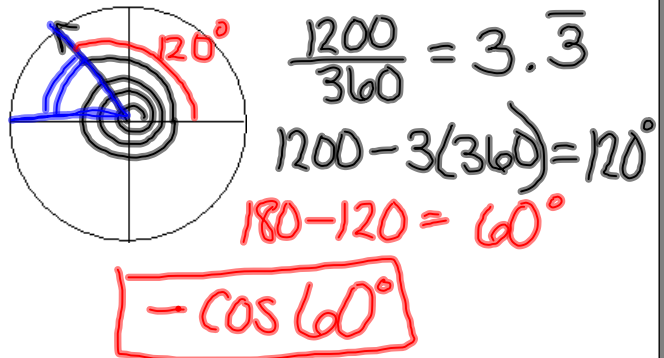
6) $\sin(-42^\circ)$



7) $\cos 130^\circ$

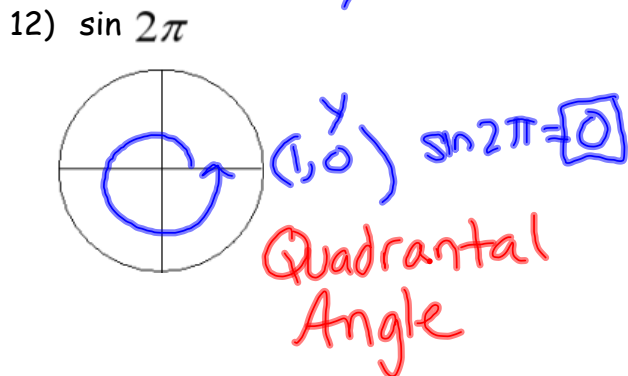
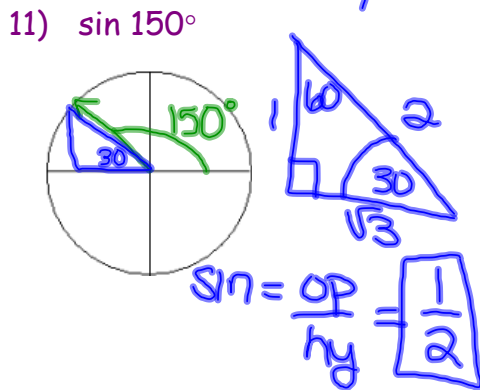
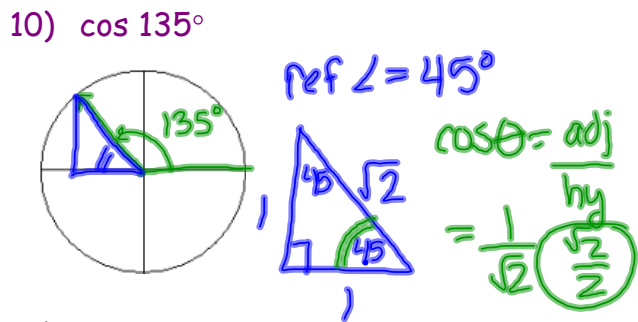
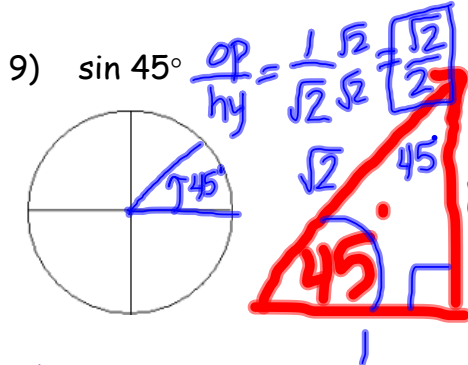


8) $\cos 1200^\circ$



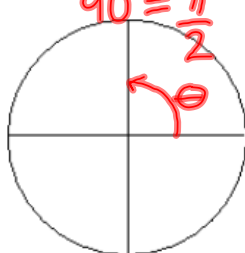
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Examples: Find the exact value of each. NO DECIMALS!

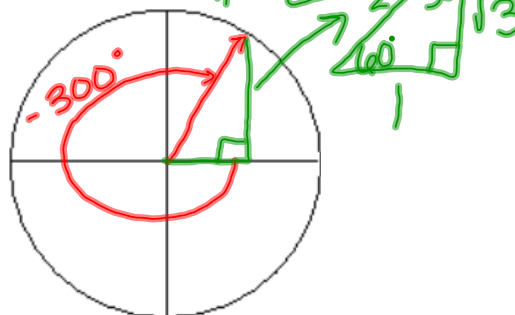


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13) $\cos\left(\frac{\pi}{2}\right) = \boxed{0}$
 $(0, 1) = (\cos, \sin)$
 $90^\circ = \frac{\pi}{2}$



14) $\sin(-300^\circ) = \frac{\text{opp}}{\text{hyp}} = \frac{\sqrt{3}}{2}$



MATH IS AWESOME!

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Homework 😊

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