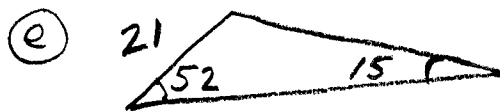
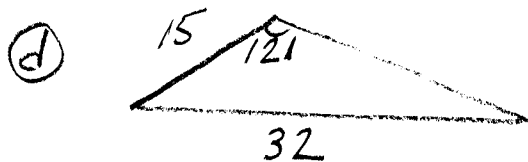
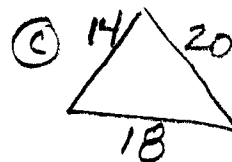
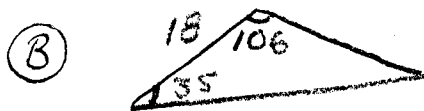
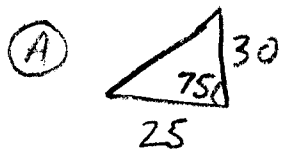
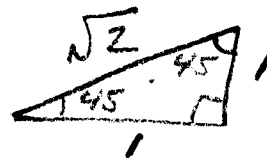


① WHICH LAW (SINES OR COSINES) would you use to solve each triangle? Any SPECIAL NOTES for any of these?



② Find the exact value of the $\cos 45^\circ$ and the $\cos 135^\circ$. TIP:



① Ⓐ SAS
(LoFC)

Ⓑ ASA
(LoFS)

Ⓒ SSS
(LoFC)

* FIND biggest angle first

Ⓓ SSA
(LoFC)
* SOLVE QUADRATIC

Ⓔ AAS
(LoFS)

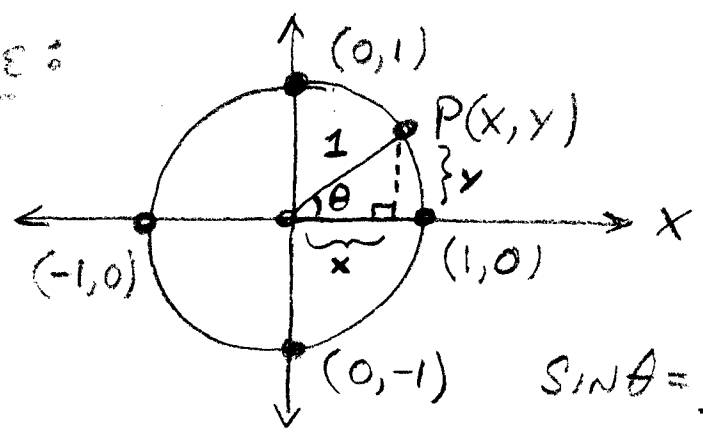
② $\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\cos 45^\circ = \frac{\sqrt{2}}{2}$

$\cos 135^\circ = -\cos 45^\circ = -\frac{\sqrt{2}}{2}$
↑
REFERENCE
Angle

Ch. 13-6 CIRCULAR FUNCTIONS

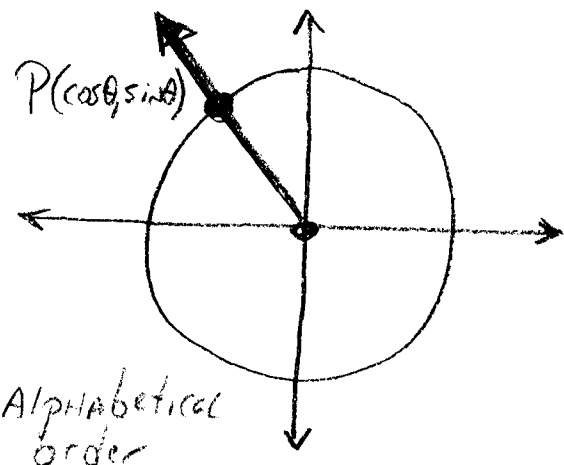
UNIT CIRCLE:



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

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

∴ For any θ where $P(x,y)$ is on the unit circle

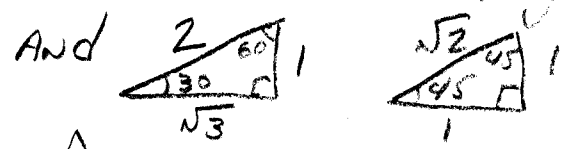


- (*) M
- (x, y)
 - (d, r)
 - (c, s)
 - (a, o)
- } Alphabetical order

(x, y), (domain, range), (cos, sin), (abscissa, ordinate)

• Exact Values \Rightarrow use reference angle

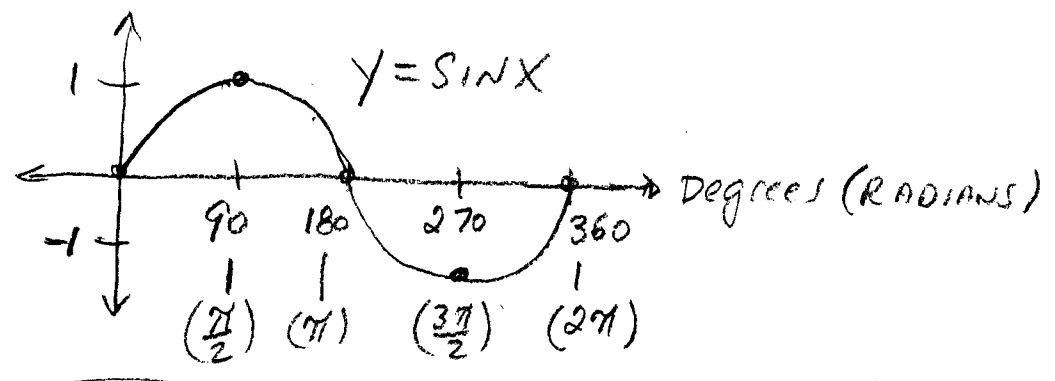
$30^\circ = \frac{\pi}{6}$
 $60^\circ = \frac{\pi}{3}$
 $45^\circ = \frac{\pi}{4}$



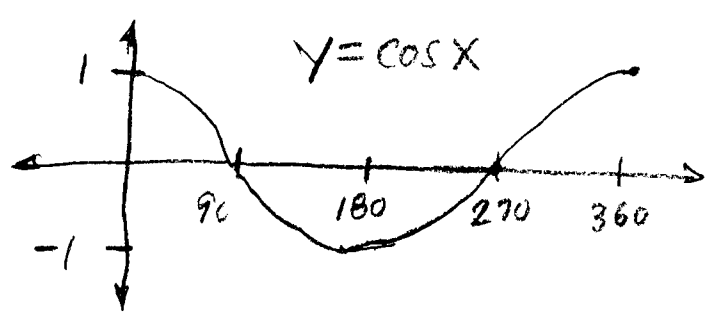
for 30, 45, 60

\Rightarrow use (1,0), (0,1), (-1,0), (0,-1)
for QUADRANTS

GRAPHING the SIN & COS FUNCTIONS:



NOTE: SIN IS \oplus IN QUADRANTS I AND II



NOTE: COS IS \oplus IN QUADRANTS I AND IV

Periodic Function \Rightarrow Repeats

$$\Rightarrow f(x) = f(x+a)$$

for all x in domain.

$a =$ Period

For the SIN and COS the period is 360° or 2π

$\textcircled{\text{EX}}$ $\sin(45^\circ) = \sin(45^\circ + 360^\circ)$

Ex 2 Find exact value:
Pg 741

(A) $\cos 675^\circ$

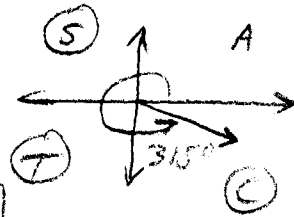
$$\cos 675^\circ = \cos(315^\circ + 360^\circ)$$

$$= \cos(315^\circ)$$

$$= \cos(\theta')$$

$$= \boxed{\cos(45) = \frac{+\sqrt{2}}{2}}$$

$$\begin{array}{r} 675 \\ -360 \\ \hline 315 \end{array}$$



Ex 3
Pg 742

Height of Ferris Wheel vs time
(Periodic Function) - Period = $\frac{1}{4}$ min.

Homework: Pg. 742 } # 2, 8, 29-32
743 }