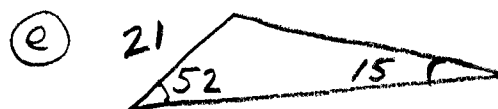
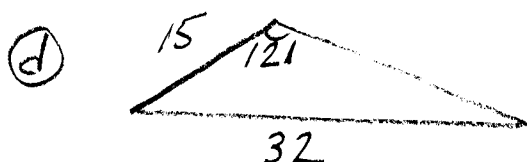
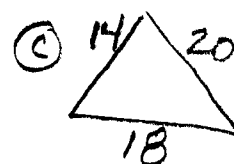
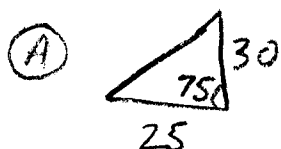
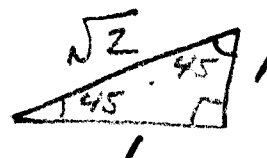


BE-Alg. 2 | TUESDAY 1-26-10

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 ① SAS
(LoC)

② ② ASA
(LoS)

③ ③ SSS
(LoC)

* FIND biggest angle first

④ ④ SSA
(LoC)

* SOLVE QUADRATIC

⑤ ⑤ AAS
(LoS)

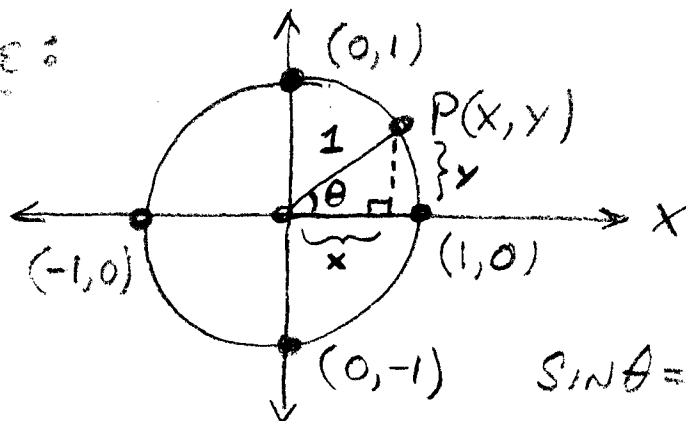
② $\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

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

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

Ch. 13-6 CIRCULAR FUNCTIONS

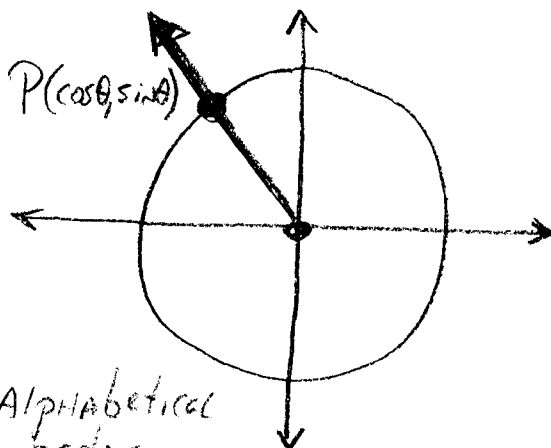
UNIT CIRCLE:



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

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

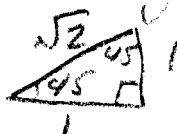
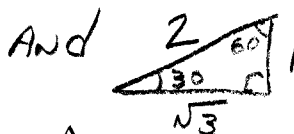
$\therefore$ For any θ where $P(x, y)$ is on the unit circle



(*) M $\left. \begin{matrix} (x, y) \\ (d, r) \\ (c, s) \\ (a, o) \end{matrix} \right\}$ Alphabetical order

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

• Exact Values $\Rightarrow$ use reference angle



for 30, 45, 60

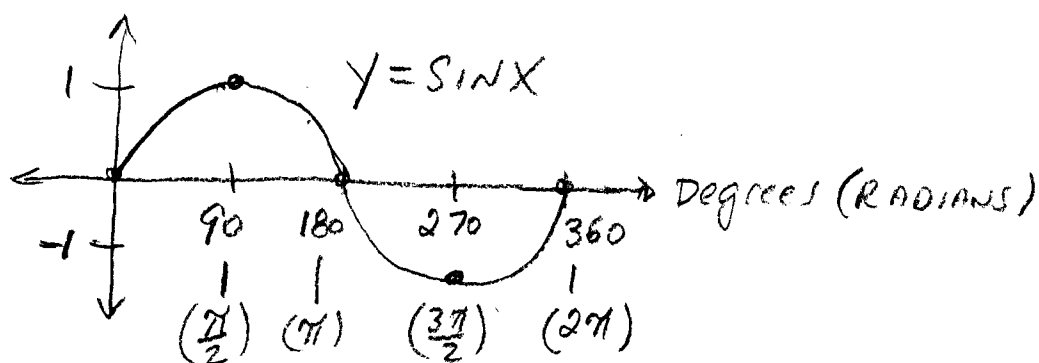
$\Rightarrow$ use $(1, 0)$, $(0, 1)$, $(-1, 0)$, $(0, -1)$
for QUADRANTS

$$30^\circ = \frac{\pi}{6}$$

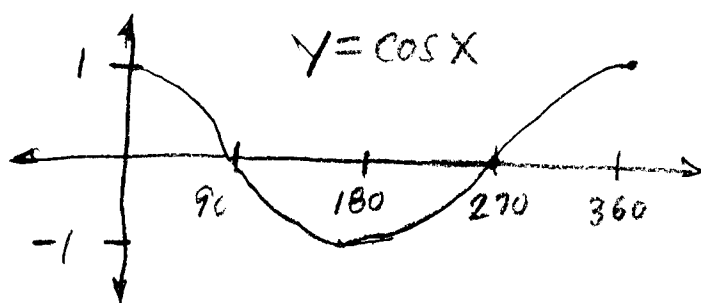
$$60^\circ = \frac{\pi}{3}$$

$$45^\circ = \frac{\pi}{4}$$

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

(EX) $\sin(45^\circ) = \sin(45^\circ + 360^\circ)$

Ex 2 Find exact value:
Pg 741

Ⓐ $\cos 675^\circ$

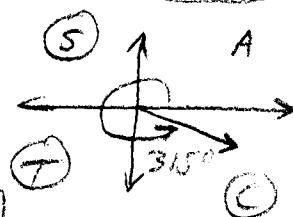
$$\cos 675^\circ = \cos(315^\circ + 360^\circ)$$

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

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

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

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



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 }

Return/review Quiz 3.