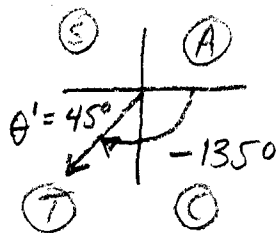
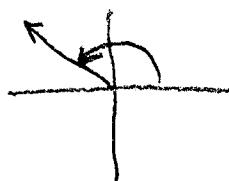


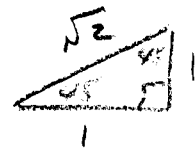
# BE-Alg. 2 | MONDAY 2-22-10

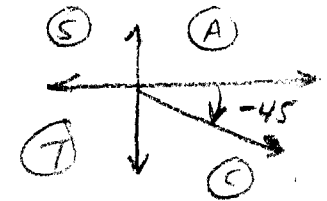
ACT PRACTICE ① Which of the following expressions is NOT equal to  $\sin(-135^\circ)$ ?

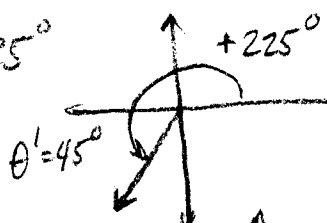
- (A)  $\sin 135^\circ$  (D)  $\sin 225^\circ$   
 (B)  $\cos 135^\circ$  (E)  $\sin 315^\circ$   
 (C)  $-\cos(-45^\circ)$

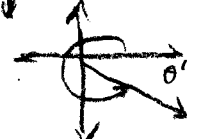
$\sin(-135^\circ) \Rightarrow$    $= -\sin 45$

(A)  $\sin(135^\circ) \Rightarrow$    $= +\sin 45 = -\sin 45 \therefore$  (A)

(B)  $\cos(135^\circ) \Rightarrow -\cos 45^\circ = -\sin 45^\circ$   ✓

(C)  $-\cos(-45^\circ) \Rightarrow$    $-\cos(-45) = -\cos 45 = -\sin 45^\circ$

(D)  $\sin 225^\circ$    $= -\sin 45^\circ$  ✓

(E)  $\sin 315^\circ$    $= -\sin 45^\circ$  ✓

$$\frac{\cos \theta}{\sec \theta - 1} + \frac{\cos \theta}{\sec \theta + 1} \stackrel{?}{=} 2 \cot^2 \theta$$

Bonus  
Q3 QUIZ 5  
Alg. 2

$$\frac{(\sec \theta + 1) \cdot \cos \theta}{(\sec \theta + 1) \sec \theta - 1} + \frac{\cos \theta \cdot (\sec \theta - 1)}{\sec \theta + 1 (\sec \theta - 1)} = 2 \cot^2 \theta$$

$$\frac{\cos \theta (\sec \theta + 1) + \cos \theta (\sec \theta - 1)}{\sec^2 \theta - 1} \quad *$$

$$\frac{\cos \theta [(\sec \theta + 1) + (\sec \theta - 1)]}{\tan^2 \theta}$$

$$\frac{\cos \theta (2 \sec \theta)}{\tan^2 \theta}$$

$$\frac{2 \cos \theta \frac{1}{\cos \theta}}{\frac{\sin^2 \theta}{\cos^2 \theta}}$$

$$\frac{2}{\frac{\sin^2 \theta}{\cos^2 \theta}}$$

$$\boxed{\frac{2 \cos^2 \theta}{\sin^2 \theta} = 2 \cot^2 \theta}$$



$$\frac{\sin^2 \theta + \cos^2 \theta}{\cos^2 \theta \cos^2 \theta} = \frac{1}{\cos^2 \theta}$$

$$\tan^2 \theta + 1 = \sec^2 \theta$$

$$\therefore \tan^2 \theta = \sec^2 \theta - 1 \quad *$$

LOOK AT  $y = \frac{1}{2} \cos(2\theta - 240)$

Amplitude =  $\frac{1}{2}$     period =  $\frac{360^\circ}{2} = 180^\circ$

Vert. Shift = 0    Horizontal Shift = ?

$y = \frac{1}{2} \cos 2(\theta - 120)$      $\downarrow$  120° to right

A better way to look at horizontal shift:

the shift is whatever value of  $\theta$

makes  $(2\theta - 240) = 0$

$\theta_{\text{SHIFT}} = \frac{240}{2} = 120^\circ$  to right

(EX)  $(\theta - 50^\circ)$      $\theta_{\text{SHIFT}} = 50^\circ$

(EX)  $(5\theta + 20^\circ)$      $\theta_{\text{SHIFT}} = \frac{-20}{5} = 4^\circ$  to left

GRAPHING  $\Rightarrow$  Don't Forget Power of T-Tables!!

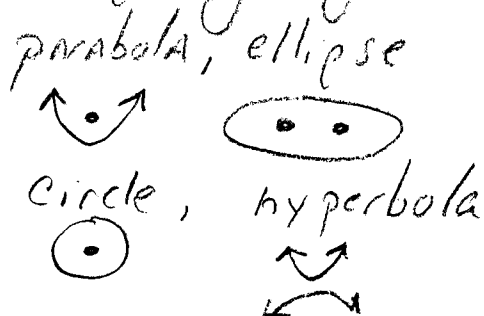
| $\theta$ | $y = \frac{1}{2} \cos(2\theta - 240)$                |
|----------|------------------------------------------------------|
| 120      | $\frac{1}{2} \cos(0) = \frac{1}{2}(1) = \frac{1}{2}$ |



## Ch. 8 Conic Sections

Section  $\Rightarrow$  "cut"

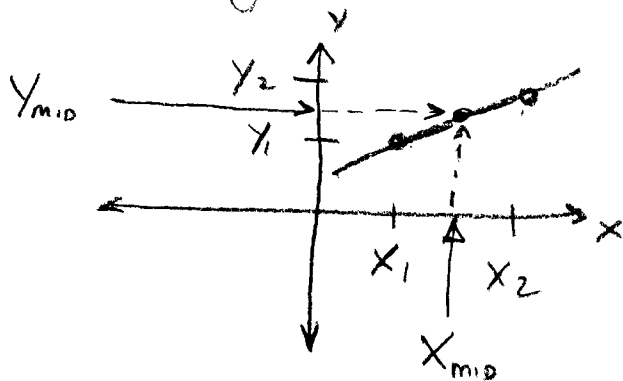
cut a right cone  $\Rightarrow$  shape you get:  
(Flashlight demo)



$\Rightarrow$  BASIC "curves" of NATURE, each with their own properties and algebraic expressions.  
(geometry)

### Ch. 8-1 Midpoint and Distance Formulas

Line segment connecting  $(x_1, y_1), (x_2, y_2)$



$M = \text{midpoint}$

$$= \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$\uparrow$   
Avg. of  
 $x_1, x_2$

$\uparrow$   
Avg. of  
 $y_1, y_2$

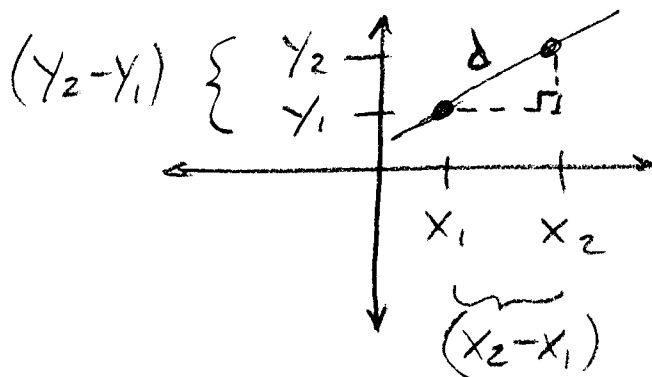
EX1  
PS412

Find midpoint of line through  
(segment)

$(4, 5)$  and  $(14, 13)$

$$M = \left( \frac{4+14}{2}, \frac{5+13}{2} \right) = \boxed{(9, 9)}$$

The distance between 2 points  $(x_1, y_1), (x_2, y_2)$



$$d^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

$$* d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

EX2  
PS413

Distance between  $(-3, 6), (4, -4)$

$$d = \sqrt{(-4-6)^2 + (4+3)^2} = \sqrt{100 + 49} = \boxed{\sqrt{149} \text{ units}}$$

Homework: Pg 414 } #10-13, 24-27.  
                  Pg 415 }