

ACT  
(Real<sup>III</sup>)  
ACT

① SOLVE  $X^2 - 36X = 0$

② WHAT IS THE SLOPE-INTERCEPT form of  $8X - Y - 6 = 0$  ?

③ A circle in the standard  $(X, Y)$  coordinate plane is tangent to the  $X$ -axis at 5 and tangent to the  $Y$ -axis at 5. WHAT IS THE EQUATION OF THE circle ?ANS

①  $X^2 - 36X = 0$

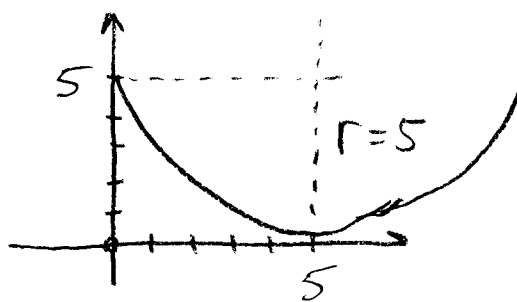
$X(X - 36) = 0 \quad \therefore X = \{0, 36\}$

②  $8X - Y - 6 = 0 \quad y = mx + b$

$-y = -8X + 6$

$y = 8X - 6$

③



$C(5, 5) \quad r = 5$

$(X - 5)^2 + (Y - 5)^2 = 25$

Alg. 2 - Homework Review - Pg 429 #5-9, 12, 13

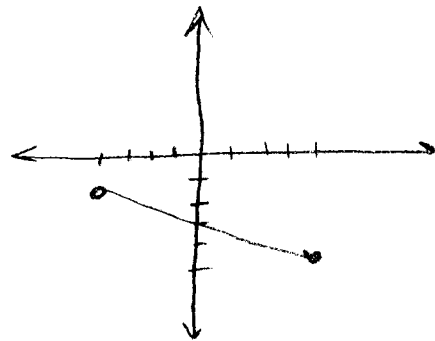
⑤  $C(-1, -5), r=2 \Rightarrow (x+1)^2 + (y+5)^2 = 4$

⑥  $(-4, 1), (4, -5)$

$M = (0, -2) = \text{Center}$

$r = \sqrt{(4)^2 + (-3)^2}$

$r = \sqrt{25} = 5$

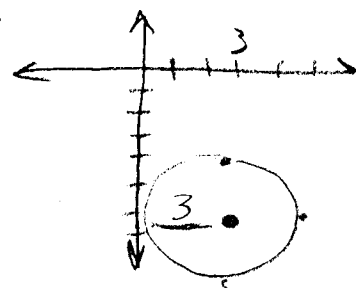


$\therefore x^2 + (y+2)^2 = 25$

⑦  $C(3, -7)$  tangent to y axis

$r=3$

$\therefore (x-3)^2 + (y+7)^2 = 9$



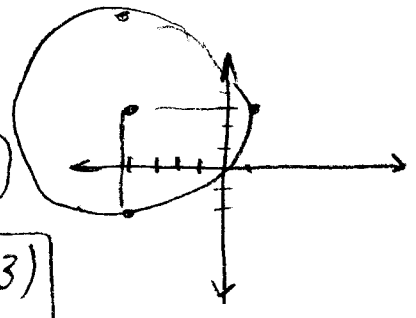
⑧  $(x-4)^2 + (y-1)^2 = 9 \Rightarrow C(4, 1) r=3$

⑨  $x^2 + (y-14)^2 = 34 \Rightarrow C(0, 14), r=\sqrt{34}$

⑫  $x^2 + y^2 + 8x - 6y = 0$

$x^2 + 8x + 4^2 + y^2 - 6y + 3^2 = 16 + 9$

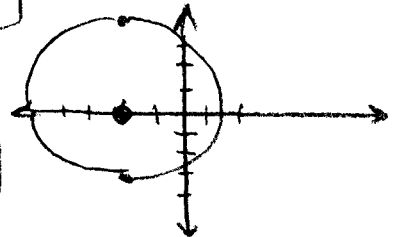
$(x+4)^2 + (y-3)^2 = 25$   $C(-4, 3)$   
 $r=5$



⑬  $x^2 + 4x + 2^2 + y^2 = 8 + 4$

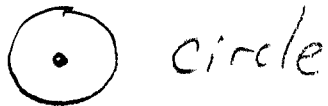
$(x+2)^2 + y^2 = 4$   $C(-2, 0), r=2\sqrt{3}$

$\approx 3.5$



1.  
Name each set of points in  
A plane:

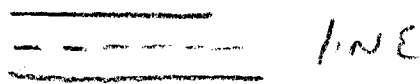
① Equidistant from A single point:



② Equidistant from 2 points:



③ equidistant from 2 lines:



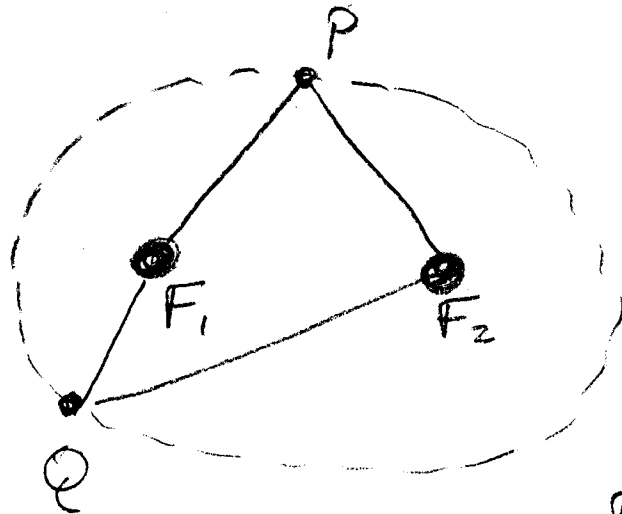
④ equidistant from A point and a line:



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The next conic section will involve  
2 points  $\Rightarrow$  foci (plural of focus)  
and the set of points such that  
the sum of the distance to each  
foci is constant = ELLIPSE.

(EX)



Foci AT  $F_1, F_2$

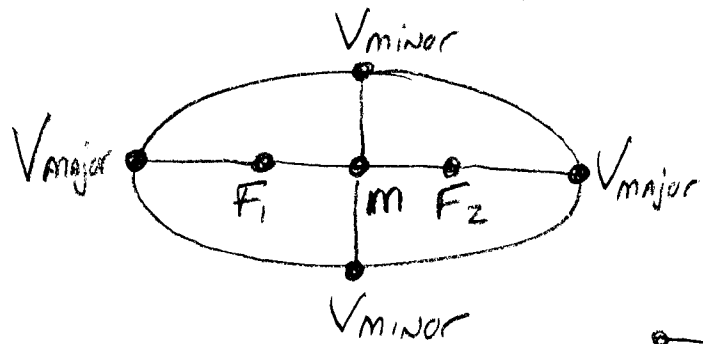
For ANY points ON the ellipse, SAY P or Q:

$$F_1P + F_2P = F_1Q + F_2Q$$

$\underbrace{\hspace{2em}}_{2a} \qquad \underbrace{\hspace{2em}}_{2a}$

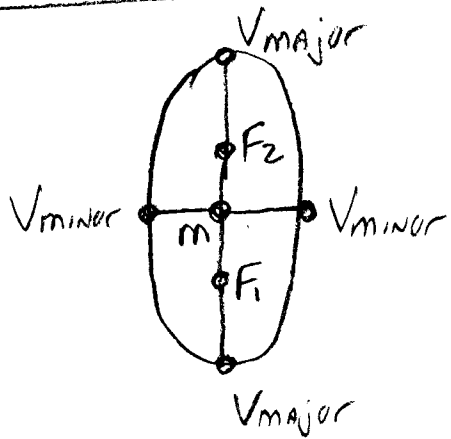
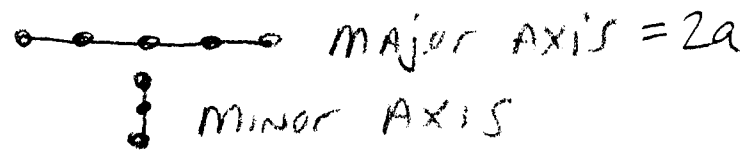
A few ellipse vocabulary terms:

"Left-Right" Ellipse



M = mid point

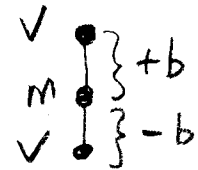
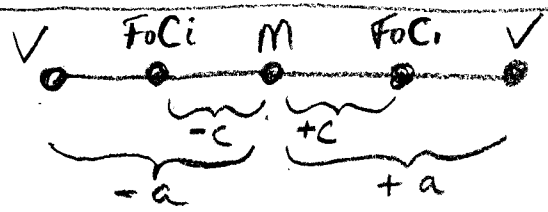
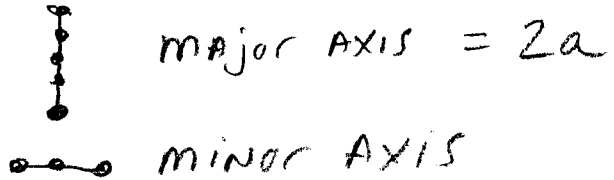
V = Vertices (4)



"Up-Down" Ellipse

M = mid point

V = Vertices (4)



$$c^2 = a^2 - b^2$$

- String ellipse exercise.
  - Conic paper ellipse exercise.
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- Homework: ① Learn ellipse (Ch 8-4)  
vocabulary terms
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- Ellipse properties  $\Rightarrow$  rays reflect  
from  $F_1$  to  $F_2$ 
  - $\Rightarrow$  planets orbit sun
  - $\Rightarrow$  kidney stones  
machine
  - $\Rightarrow$  listening room.