

BE-Alg. 2 | WEDNESDAY 3-16-11

① What are the 4
"conic sections"?

② What is the distance between
any two points on the x-y
coordinate plane? $(x_1, y_1), (x_2, y_2)$
 $d = ?$

RECALL: 4 CONIC SECTIONS:

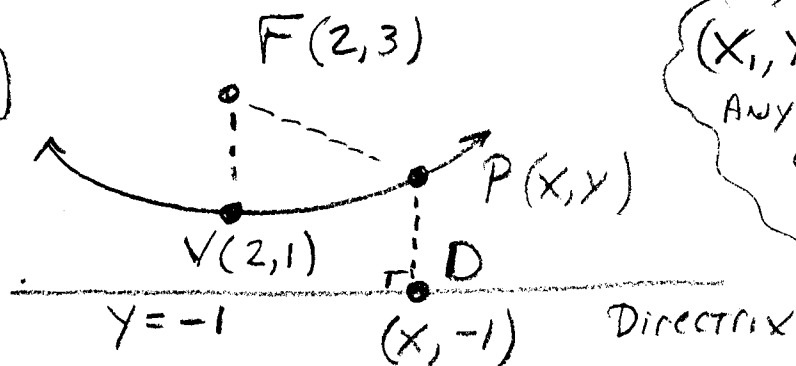
• parabolas, • circles • ellipses • hyperbolas

↓
"the locus of points that are the same distance from a point (focus) and a line (directrix)"

Where did the formula for ANY ↗ ↘ parabola come from?

The distance formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Run² + Rise²

EX
PG 419



$(x_1, y_1), (x_2, y_2)$
Any 2 points
ON X-Y
COORDINATE
PLANE

$$\overline{FP} = \overline{PD}$$

$$\sqrt{(x-2)^2 + (y-3)^2} = \sqrt{(x-x)^2 + (y+1)^2}$$

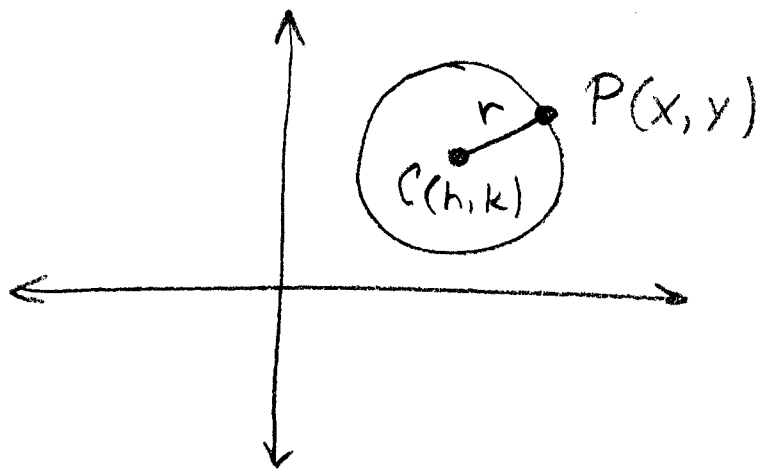
$$(x-2)^2 + (y-3)^2 = (0)^2 + (y+1)^2$$

$$\frac{1}{8}(x-2)^2 + 1 = y$$

Vertex Form
OF PARABOLA

$$a(x-h)^2 + k = y$$

Lets use the distance formula again...
to find the equation of my circle!



Lets call the center coordinates (h, k)
Note: the center is the "focus" of the circle.

Using the distance formula

$$\sqrt{(x-h)^2 + (y-k)^2} = \sqrt{r^2}$$

$$\therefore (x-h)^2 + (y-k)^2 = r^2$$

Ex) Eq. of circle with center $(-5, 1)$, $r = 8$

$$(x+5)^2 + (y-1)^2 = 64$$

GRAPH THE EQUATION OF THE CIRCLE
that is NOT in STANDARD (h, k) form:

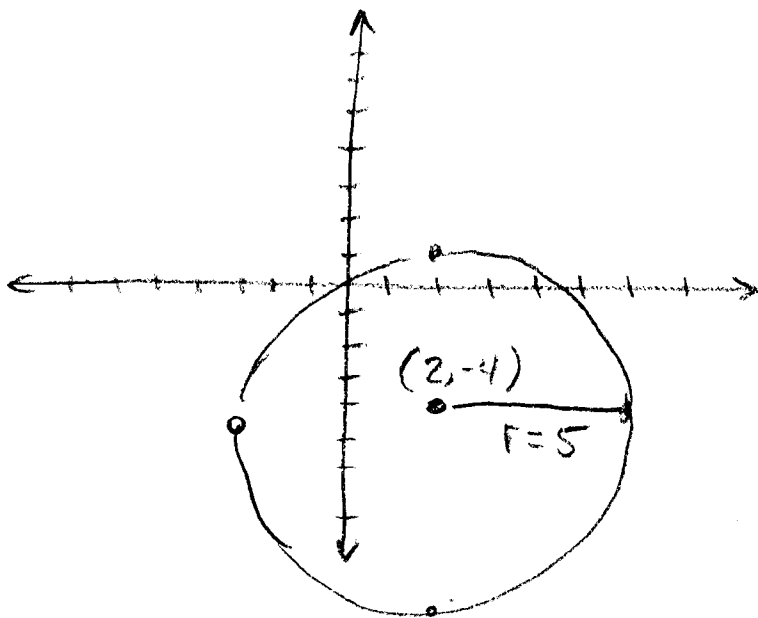
EX 5
PG 428

$$x^2 + y^2 - 4x + 8y - 5 = 0$$

$$x^2 - 4x + \{2^2\} + y^2 + 8y + \{4^2\} = 5 + \{4\} + \{16\}$$

$$\boxed{(x-2)^2 + (y+4)^2 = 25}$$

$$\therefore C(2, -4) \quad r = 5$$



Homework: • Pg. 428/9 # 1-4

• Read Ch. 8-3, Circles.