1. SKETCH BY PLOTTING POINTS
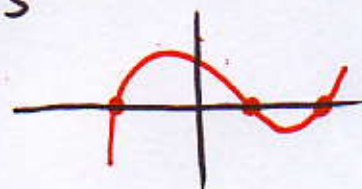
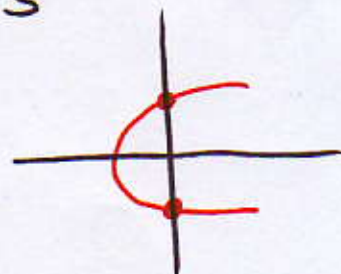| X	y
-2	2
-1	-1
0	-2
1	-1
2	2

$$y = x^2 - 2$$
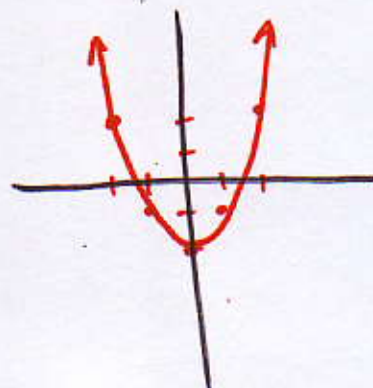
2. X-INTERCEPT : POINTS WHERE THE GRAPH CROSSES X-AXIS

$$(a, 0)$$

3. y-INTERCEPT : POINTS WHERE THE GRAPH CROSSES y-AXIS
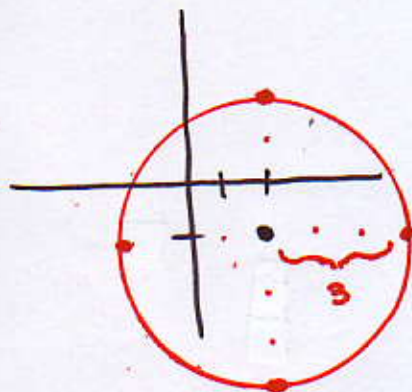
$$(b, 0)$$

4. EQUATION OF A CIRCLE:

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

WHERE (h, k) IS THE CENTER

AND r = RADIUS

EXAMPLE: $(x-2)^2 + (y+1)^2 = 9$

CENTER $(2, -1)$

RADIUS 3

5. GENERAL FORM

$$x^2 + y^2 + cx + dy + e = 0$$

EX. $x^2 + y^2 + 2x - 6y + 7 = 0$

SAY: x's WITH x's, y's WITH y's, CONSTANT ON THE OTHER SIDE.

THEN: COMPLETE THE SQUARE

$$x^2 + 2x + \underline{\frac{1}{2}}^2 + y^2 - 6y + \underline{\frac{3}{2}}^2 = -7 + \underline{1} + \underline{9}$$
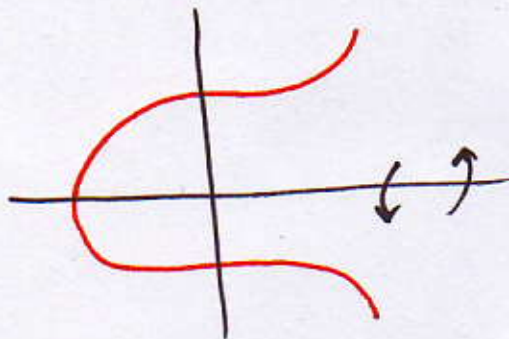
$$(x+1)^2 + (y-3)^2 = 3$$

CENTER $(-1, 3)$

RADIUS $\sqrt{3}$

ADD TO BOTH SIDES SO EQUATION STAYS EQUAL

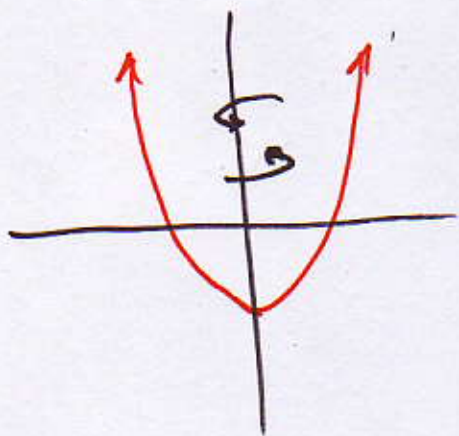6. DEFINITION OF SYMMETRY: A MIRROR-IMAGE ON EACH SIDE OF AXES.

SYMMETRY ABOUT X-AXIS

TEST
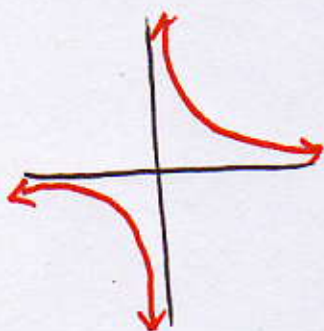- REPLACE y WITH -y AND SEE
- IF EQUATION REMAINS UNCHANGED.

SYMMETRY ABOUT y-AXIS

TEST
- REPLACE x WITH -x AND SEE
- IF EQUATION REMAINS UNCHANGED

SYMMETRY ABOUT THE ORIGIN

TEST
- REPLACE x WITH -x
- REPLACE y WITH -y
- EQUATION UNCHANGED