Graph Circles – Center Form

$$(x–h)^2 + (y–k)^2 = r^2 \quad \text{Center at (h,k) with radius r}$$

Procedure

1. **Label the center as (h,k) (*change the signs*)**
2. **Determine the radius, r**
3. **From the center, go over r on both sides of the center**
4. **From the center, go up & down r**
5. **Label those points on the graph**
6. **Connect the points**

Example: Graph $(x–3)^2 + (y+4)^2 = 5^2$

1. **The center is at (+3, –4)**
2. **The radius is 5**
3. **Add & subtract 5 from the x coordinate; – 8 and –2 ➜(8, 4) and (–2, 4)**
4. **Add & subtract 5 from the y coordinate; +1 and –9 ➜ (3, 1) and (3, –9)**
5. **Connect in a circle (8,4), (–2,4), (3, 1) and (3, –9)**

(3, –4)
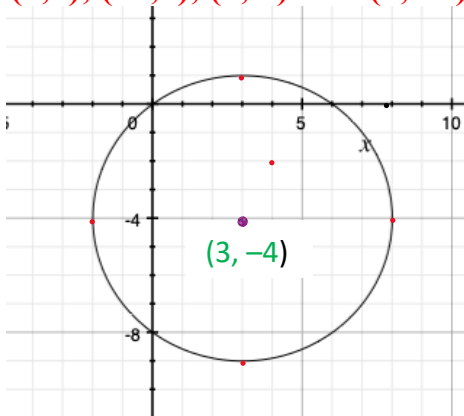
Graph the following equations:

1. $(x − 3)^2 + (y − 1)^2 = 2^2$

2. $(x + 5)^2 + (x + 2)^2 = 4^2$

3. $(x − 6)^2 + (y + 2)^2 = 3^2$

4. $x^2 + (y − 2)^2 = 5^2$

5. $x^2 + y^2 = 4$

6. $(x − 5)^2 + (y + 1)^2 = 16$

7. $(x −6)^2 + (y + 2)^2 = 9$

8. $(x +3)^2 + y^2 = 25$