

Directions: Complete the square in each equation below. Write an equation in standard form for each circle. Then, give its center and its radius.

1.)  $x^2 + y^2 - 6y = -5$

2.)  $x^2 - 8x + y^2 + 2y = 8$

3.)  $x^2 + y^2 + 4y = 12$

4.)  $x^2 - 2x + y^2 = 80$

5.)  $x^2 + 8x + y^2 - 2y = 64$

6.)  $x^2 - 24x + y^2 + 6y = -137$

7.)  $x^2 + 14x + y^2 - 12y = -4$

8.)  $x^2 + 2x + y^2 - 24y = -120$

9.)  $x^2 + 2x + y^2 - 10y = 55$

10.)  $x^2 - 8x + y^2 - 32y = -263$

11.) **MULTIPLE CHOICE** Which point does not lie on the circle described by the equation  $(x + 2)^2 + (y - 4)^2 = 25$ ? **SHOW WORK!!**

- A. (-2, -1)    B. (0, 5)    C. (3, 4)    D. (1, 8)

**MORE ON THE BACK!!!!**

**Directions: Write an equation of a circle in standard form.**  
(Hint: you might need to use distance and/or midpoint formula)

12.) Center: (2, -5) Point on circle: (-7, -1)

13.) Endpoints of a diameter are (-3, 11) and (3, -13)

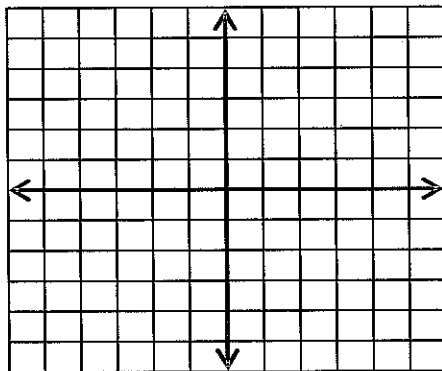
14.) **Earthquakes** After an earthquake, you are given seismograph readings from three locations, where the coordinate units are miles.

At A(-1, -1), the epicenter is 2 miles away.

At B(1, 2), the epicenter is 3 miles away.

At C(2.5, -2.5), the epicenter is 2 miles away.

- a. Graph three circles in one coordinate plane to represent the possible epicenter locations determined by each of the seismograph readings.



- b. What are the coordinates of the epicenter?
- c. People could feel the earthquake up to 7 miles from its epicenter.  
Could a person at (-5, 3) feel it? **Explain in words or use a formula to explain.**