

NAME: \_\_\_\_\_ Score \_\_\_\_\_/10

Please **print** your name

1. A point is on the x-axis if and only if its **second** coordinate is **zero**.
2. A point is on the y-axis if and only if its **first** coordinate is **zero**.
3. The equation of the circle of radius  $r$  with center at the origin is  $x^2 + y^2 = r^2$ .
4. Write the equation of the circle with radius 17 and center at the point  $(5, p)$ .

$$(x - 5)^2 + (y - p)^2 = 17^2.$$

5. Write the midpoint formula  $\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

6. Calculate the distance between the points  $(3, -5)$  and  $(-7, -1)$ .

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} = \sqrt{(3 + 7)^2 + (-5 + 1)^2} = \sqrt{116}$$

7. (4 points) Write the equation of the circle  $4x^2 + 4y^2 - 16x - 24y + 51 = 0$  in standard form.

$$4x^2 + 4y^2 - 16x - 24y + 51 = 0$$

$$x^2 + y^2 - 4x - 6y + \frac{51}{4} = 0$$

$$(x^2 - 4x + ) + (y^2 - 6y) = -\frac{51}{4}$$

$$(x^2 - 4x + 4) + (y^2 - 6y + 9) = -\frac{51}{4} + 4 + 9$$

$$(x - 2)^2 + (y - 3)^2 = -\frac{51}{4} + \frac{16}{4} + \frac{36}{4} = -\frac{51}{4} + \frac{52}{4} = \frac{1}{4}$$

$$(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)^2$$