

## Writing Equations of Circles

Use the information provided to write the standard form equation of each circle.

$$1) 8x + x^2 - 2y = 64 - y^2$$

$$(x^2 + 8x + 16) + (y^2 - 2y + 1) = 64 + 16 + 1$$

$$(x+4)^2 + (y-1)^2 = 81$$

$$3) x^2 + y^2 + 14x - 12y + 4 = 0$$

$$(x^2 + 14x + 49) + (y^2 - 12y + 36) = -4 + 49 + 36$$

$$(x+7)^2 + (y-6)^2 = 81$$

$$5) x^2 + 2x + y^2 = 55 + 10y$$

$$(x^2 + 2x + 1) + (y^2 - 10y + 25) = 55 + 25 + 1$$

$$(x+1)^2 + (y-5)^2 = 81$$

$$7) \text{ Center: } (-11, -8)$$

$$\text{ Radius: } 4$$

$$(x+11)^2 + (y+8)^2 = 16$$

$$9) (x-16)^2 + (y-6)^2 = 1$$

$$\text{ Translated 4 left, 2 up}$$

$$(x-12)^2 + (y-8)^2 = 1$$

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

$$(x^2 + 24x + 144) + (y^2 + 6y + 9) = -137 + 144 + 9$$

$$(x+12)^2 + (y+3)^2 = 16$$

$$4) y^2 + 2x + x^2 = 24y - 120$$

$$(x^2 + 2x + 1) + (y^2 - 24y + 144) = -120 + 1 + 144$$

$$(x+1)^2 + (y-12)^2 = 25$$

$$6) 8x + 32y + y^2 = -263 - x^2$$

$$(x^2 + 8x + 16) + (y^2 + 32y + 256) = -263 + 256 + 16$$

$$(x+4)^2 + (y+16)^2 = 9$$

$$8) \text{ Center: } (-6, -15)$$

$$\text{ Radius: } \sqrt{5}$$

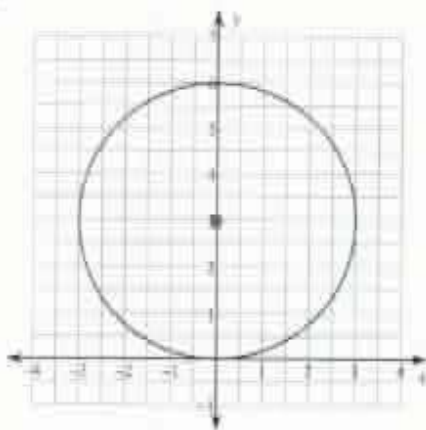
$$(x+6)^2 + (y+15)^2 = 5$$

$$10) (x+5)^2 + (y+7)^2 = 36$$

$$\text{ Translated 5 left, 4 down}$$

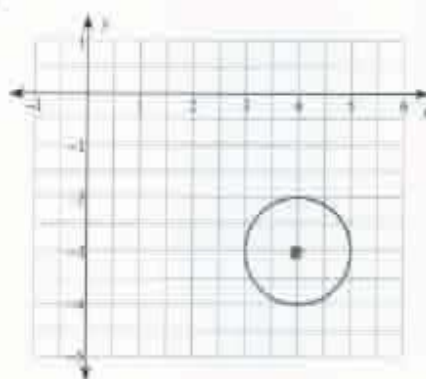
$$(x+10)^2 + (y+11)^2 = 36$$

11)



$$x^2 + (y-3)^2 = 9$$

12)



$$(x-4)^2 + (y+3)^2 = 4$$