Factor:

$x^2 + 8x + 16$

b = 8, c = 16

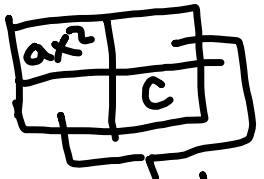
4

x + 4

x + 4	x^2	4x
x + 4	4x	16

$(x+4)(x+4)$

$(x+4)^2$



split or Factors ac add b

ax^2+bx+c

$x^2 - 10x + 25$

b = −10, c = 25

x − 5

x	x^2	−5x
−5	−5x	25

$(x-5)(x-5)$

$(x-5)^2$

Equation of a Circle

Solving by completing the square:

$x^2 - 8x = -16$

$\div 2$

$(-4)^2$

$x^2 - 8x + 16 = -16 + 16$

$\sqrt{(x-4)^2} = \sqrt{0}$

$x - 4 = 0$

$+4 \quad +4$

$x = 4$

$x^2 - 10x + = -9$

$\div 2$

$(-5)^2$

$x^2 - 10x + 25 = -9 + 25$

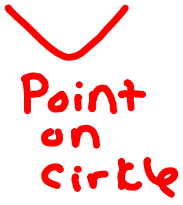
$\sqrt{(x-5)^2} = \sqrt{16}$

$x - 5 = 4, -4$

$+5 \quad +5$

$x = 9, 1$

Equation of a Circle: The equation of a circle is represented as $(x-h)^2+(y-k)^2=r^2$ where (h,k) is the center and r is the radius.



Write an equation of a circle with the center (5, 4) and radius 7.

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

$(x-5)^2 + (y-4)^2 = 49$

$(x+6)^2 + (y-2)^2 = 25$

Center: $(-6, 2)$ radius: 5

The equation $x^2 - 4x + y^2 + 2y = 20$ defines a circle. What are the coordinates of the center and the radius?

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

$x^2 - 4x + 4$ $\quad$ $y^2 + 2y + 1 = 20 + 4 + 1$

$(-2)^2$ $\quad$ $(1)^2$

$(x-2)^2$ $\quad$ $(y+1)^2$

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

center: $(2, -1)$ $\quad$ Radius: 5

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