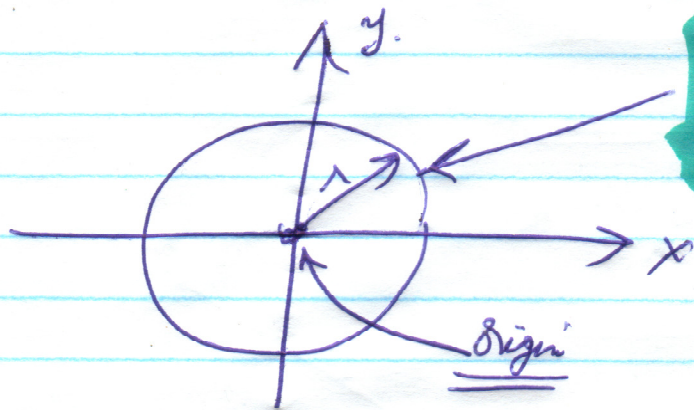




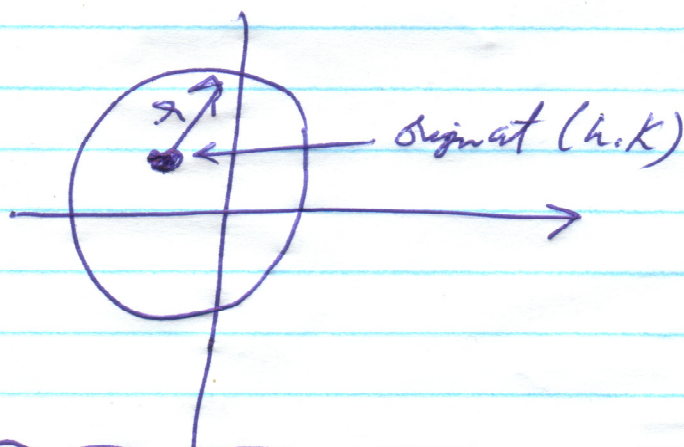
Circular Geometry

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April 23, 2012



$$x^2 + y^2 = r^2$$

Circle @ origin



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

Circle @ (h,k)
↑ general origin

EX#1

Show that

$$x^2 + y^2 - x + 2y + 1 = 0$$

represents a circle

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

$$x^2 - 2hx + h^2 + y^2 - 2ky + k^2 = r^2$$

$$x^2 + y^2 - 2hx - 2ky + (h^2 + k^2 - r^2) = 0$$

implicit

compare

$$+2hx = +x$$

$$2h = 1$$

$$h = \frac{1}{2}$$

$$-2ky = -2ky$$

$$1 = -k$$

$$k = -1$$

$$h^2 + k^2 - r^2 = 0$$

$$\frac{1}{4} + 1 - r^2 = 0$$

$$r^2 = \frac{17}{4}$$

$$r = \frac{\sqrt{17}}{2}$$

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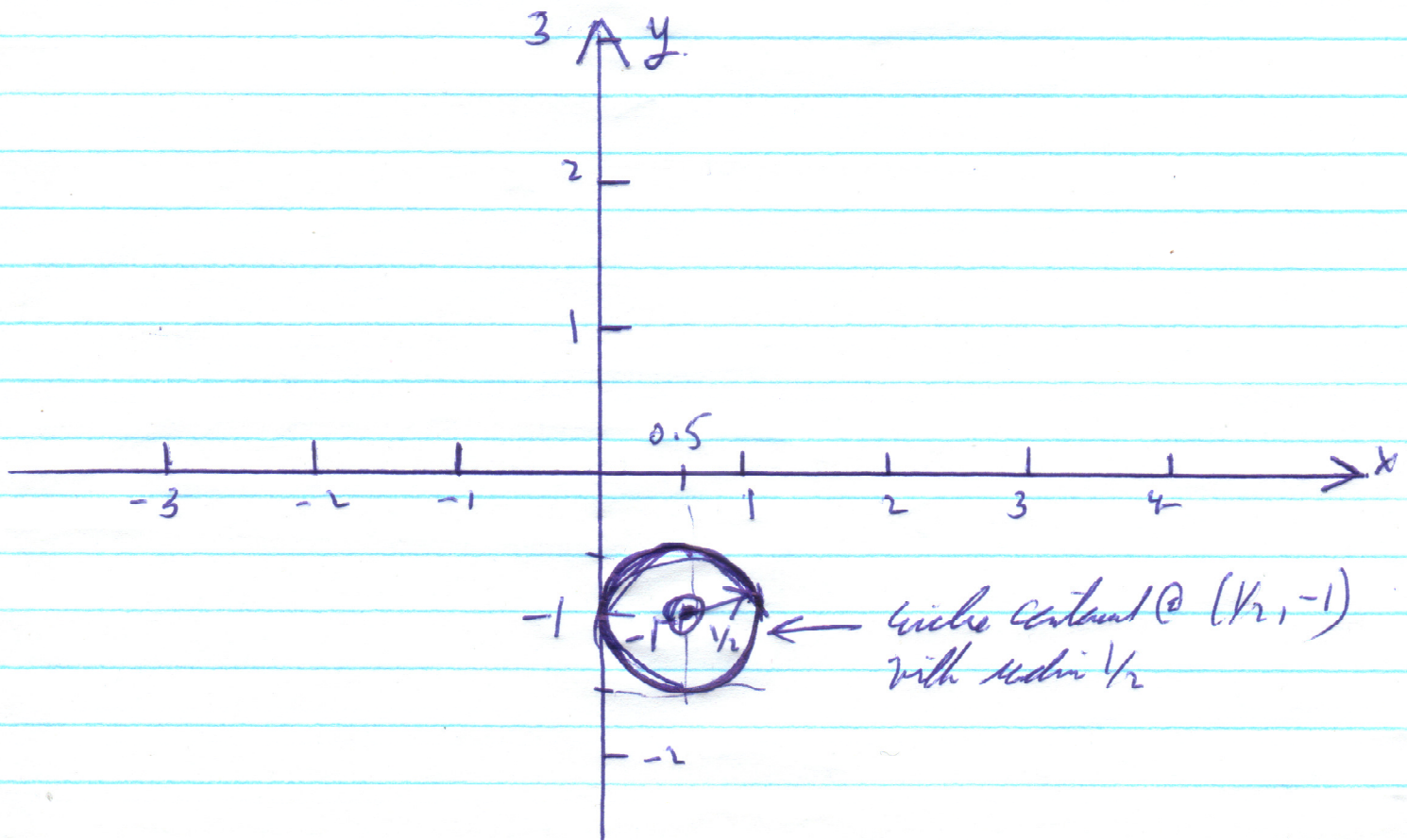
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$$\therefore x^2 + y^2 - x + 2y + 1 = 0$$

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

$$(h, k) = (\frac{1}{2}, -1)$$

$$r = \frac{1}{2}$$

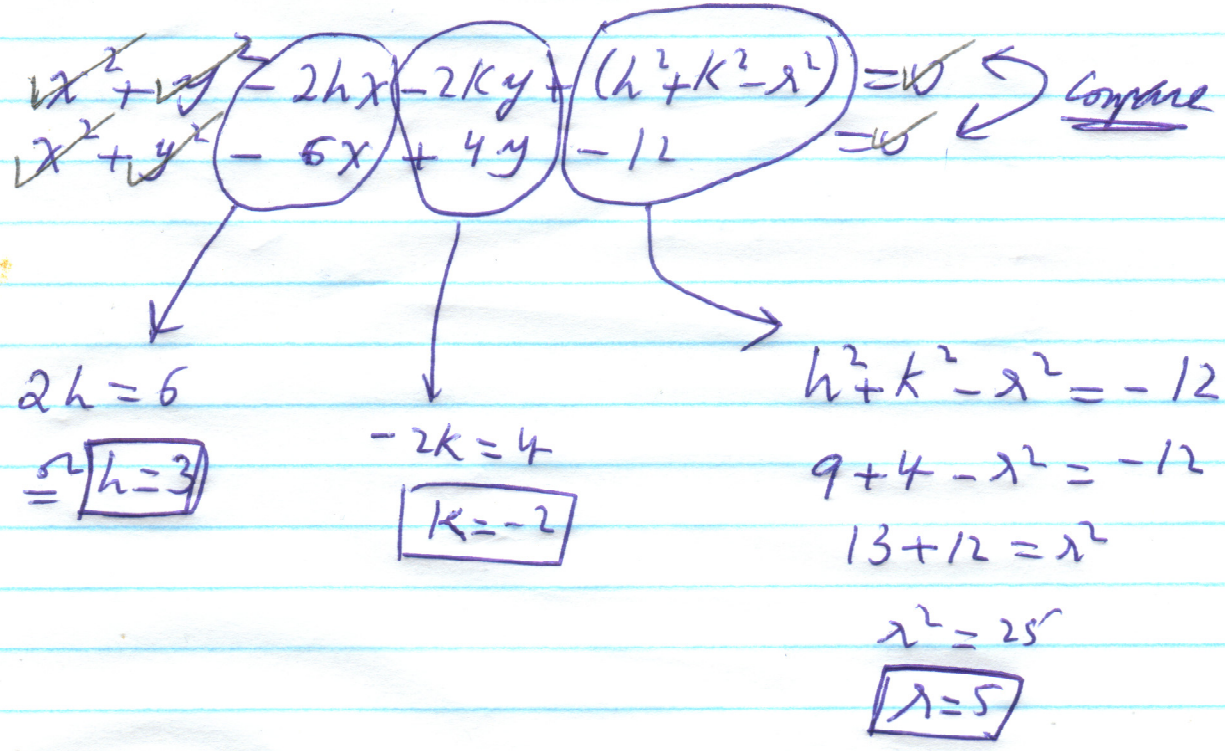


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Ex#2: Show that $x^2 + y^2 - 6x + 4y - 12 = 0$

represents a circle



$(h, k) = (3, -2)$
 $r = 5$

Circle centered @ $(3, -2)$
with radius equal to "5"

The end!

