Section 1.2

Graphs that are not functions--You need to know these also!!

Circle

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

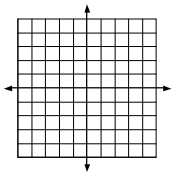
$$(x-h)^2 + (y-k)^2 = r^2$$

Shift right/left

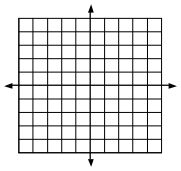
Shift up/down

Let's Graph These!!!

$x^2 + y^2 = 4$

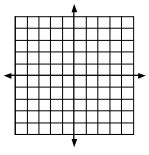


$(x-2)^2 + (y+1)^2 = 4$

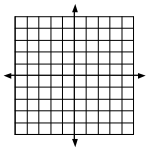


Graph $y = \sqrt{r^2 - x^2}$

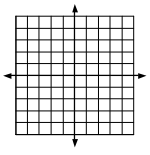
$y = \sqrt{4 - x^2}$



$y = \sqrt{1 - x^2}$



$y = -\sqrt{9 - x^2}$



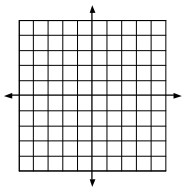
So how do I know by looking at the equation if it a function or not???

Are the following equations functions?

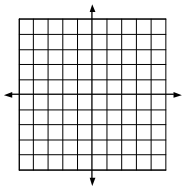
1) $x^2 + y = 4$
2) $x + y = 4$
3) $x^3 + y = 4$
4) $x + y^2 = 4$
5) $x^3 y + y^2 + yx = 4$

Graph

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



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



Finding x & y intercepts

Find the x- and y- intercepts of each graph:

a) $y=x^3-4x$

b) $x=y^2-3$

Find the equation of the circle:

a) Center (0,0); radius: 3

b) Center: (3,-2); solution point: (-1,1)

Completing the Square

a) $4x^2+4y^2+20x-16y+37=0$

$4x^2+20x+4y^2-16y=-37$

$4(x^2+\_\_x)+4(y^2-\_\_y)=-37$

$4(x^2+\_\_x+\_\_\_)+4(y^2-\_\_y+\_\_\_)=-37+\_\_\_+\_\_\_$

$4(x+\_\_\_)^2+4(y-\_\_\_)^2=\_\_\_$

$(x+\_\_\_)^2+(y-\_\_\_)^2=\_\_\_$

Try one!!

a) $x^2 - 4x + y^2 + 2y + 1 = 0$

Finding a point of intersection

a) $y = x^2 - 3$ and $y = x - 1$

Find the x- and y- intercepts

#13 - 21

a) $y^2 = x^3 - 4x$

b) $y = x^2\sqrt{9 - x^2}$

Sketch the graph

#23 - 37

a) $y = 1 - x^3$

b) $y = -\sqrt[3]{x - 2}$

Write the equation of the circle given: #39 - 45

a) Endpoints of a diameter: $(3,3),(-3,3)$

Complete the square to write the equation of the circle: #47 - 53

a) $x^2 + y^2 - 4x + 2y + 3 = 0$ b) $4x^2 + 4y^2 - 4x + 2y - 1 = 0$

Find the points of intersection #55 - 61

a) $x^2 + y = 4;\ \ 2x - y = 1$ a) $y = x^3,\ \ y = 2x$

Homework

Pg 21, #7 -61 eoo