Geometry

WEDS 2-6-13

CLASS NOTES

(13) (−5, 1) through ⊙ C(1, −2)

h, k

$(-2-1)^2 + (1+5)^2 = r^2$

$9 + 36 = r^2$

$45 = r^2$

$(x-1)^2 + (y+2)^2 = 45$

(14) graph $x^2 + (y-2)^2 = 9$

(15) $(x+1)^2 - y^2 = 16$ hyperbola! NOT A CIRCLE

(16) $x^2 + y^2 = 100$ $r = 10$ $C(0,0)$

(17) $x^2 + (y+2)^2 = 4$ $C(0,-2)$ $r = 2$

WolframAlpha computational... knowledge engine

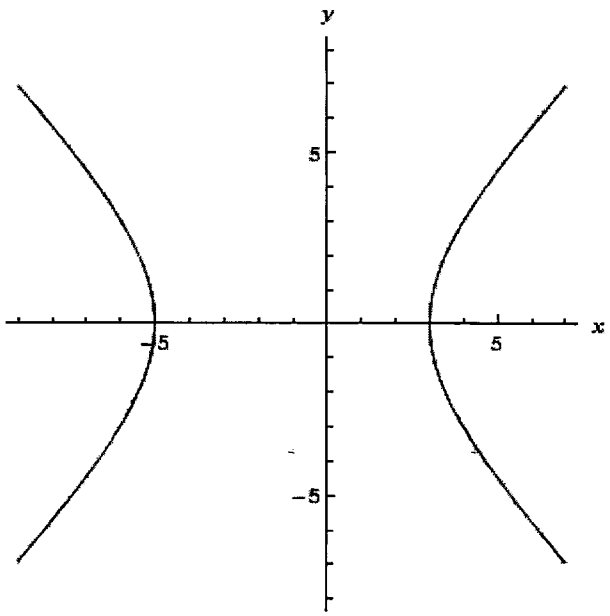
Plot (x+1)^2 -y^2=16

Examples Random

Input interpretation:

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

Implicit plot:



Enable interactivity

Geometric figure:

Properties

hyperbola

(10) $\overset{h,\ k}{C(-12,-10)}$ $r = 8$

$$(x+12)^2 + (y+10)^2 = 64$$

(11) $C(1.5, -2.5)$ $r = \sqrt{3}$

$$(x-1.5)^2 + (y+2.5)^2 = 3$$

(12) through $(2,2)$, $C(1,1)$

$$r^2 = (1-2)^2 + (1-2)^2$$

$$r^2 = 1 + 1 = 2$$

$$r = \sqrt{2}$$

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

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

(16) $d = \frac{1}{2}$ mi $\Rightarrow$ $r = \frac{1}{4}$ mi

$C = 2\pi\left(\frac{1}{4}\right) = \frac{\pi}{2}$

$C = \frac{3.1416}{2} = 1.5708$

$\boxed{C = 1.6 \text{ mi}}$

$A = \pi r^2 = \pi\left(\frac{1}{4}\right)^2$

$A = \pi\left(\frac{1}{16}\right) = \frac{3.1416}{16} = \frac{1.5708}{8}$

$= \frac{.7854}{4}$

$= \frac{.3927}{2}$

$= .1963 5\ldots$

$\boxed{A = .2 \text{ mi}^2}$

(7) $r = 2.1$ m

$C = 2\pi r$

$A = \pi r^2$

$C = 2(3.1416)(2.1)$

$C = 13.2$ m

3.1416 × 4.2 = 13.19472

$A = \pi(2.1)^2$

$A = 13.9$ m^2

2.1 × 2.1 = 4.41

3.1416 × 4.41 = 13.854456

(15) $r = 6.25\ \text{ft}$

$$A = \pi r^2 = (3.1416)(6.25)^2$$

$$\begin{array}{r} 6.25 \\ \times\ 6.25 \\ \hline 3125 \\ 1250 \\ 3750 \\ \hline 39.0625 \end{array} \qquad \begin{array}{r} 39.0625 \\ \times\ 3.1416 \\ \hline 2343750 \\ 390625 \\ 1562500 \\ 390625 \\ 1171875 \\ \hline 122.71875000 \end{array}$$

$$A = \boxed{122.7\ \text{ft}^2}$$