

Precalc AB Unit 7 Review (Conics)

Let's start by identifying and graphing each conic. Find the center, focus/foci, vertex/vertices, equations of asymptotes, and directrix for each, where applicable:

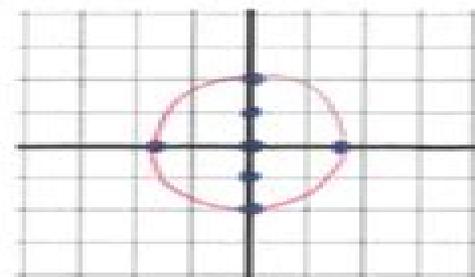
1. $\frac{4x^2}{12} + \frac{3y^2}{12} = \frac{12}{12}$

$$\frac{x^2}{3} + \frac{y^2}{4} = 1$$

$$\begin{aligned} a &= 2 \\ b &= \sqrt{3} \\ c^2 &= a^2 - b^2 \\ c^2 &= 4 - 3 \quad c = 1 \end{aligned}$$

Ellipse! Facing 0

center: (0,0)
 vertices: (0,2) (0,-2)
 co-vertices: ($\sqrt{3}$,0) ($-\sqrt{3}$,0)
 foci: (0,1) (0,-1)

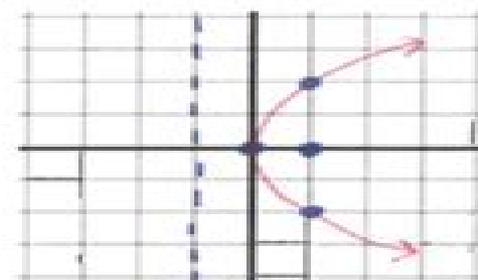


2. $y^2 = 4x$

$$\begin{aligned} 4p &= 4 \\ p &= 1 \end{aligned}$$

Parabola! Facing \odot

vertex: (0,0)
 focus: (1,0)
 directrix: $x = -1$
 focal width = 4



3. $4x^2 - y^2 + 2y = 5$ Hyperbola! Facing \odot

$$4x^2 - (y^2 - 2y + \underline{1}) = 5 + \underline{-1}$$

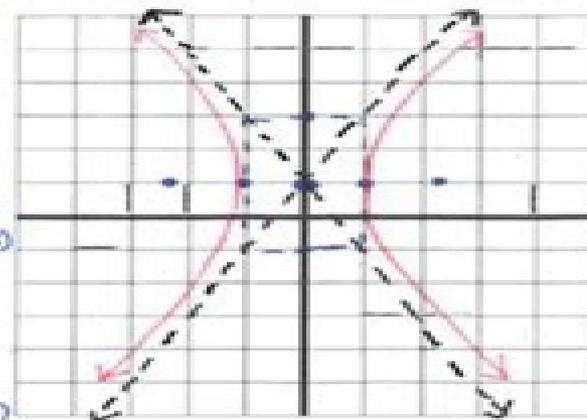
$$\frac{4x^2}{4} - \frac{(y-1)^2}{4} = \frac{4}{4}$$

$$x^2 - \frac{(y-1)^2}{4} = 1$$

$$\begin{aligned} a &= 1 \\ b &= 2 \\ c^2 &= a^2 + b^2 \\ c^2 &= 1 + 4 \quad c^2 = 5 \quad c = \sqrt{5} \end{aligned}$$

center: (0,1)
 vertices: (-1,1) (1,1)
 co-vertices: (0,-1) (0,3)
 foci: ($\pm\sqrt{5}$, 1)

asymptotes:
 $y = \pm 2x + 1$
 or $y - 1 = \pm 2(x - 0)$
 $y - 1 = \pm 2x$



Converting Conics Key

TD Snyder



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