

Conics - Again.

Monday, October 23, 2017 12:42 PM

- 19 C
- 20 E
- 21 H
- 23 P

19.

$$\begin{array}{r} x^2 - 10x + \textcircled{25} \\ \downarrow \\ (x-5)^2 \end{array} + \begin{array}{r} y^2 - 12y + \textcircled{36} \\ \downarrow \\ (y-6)^2 \end{array} = -45 + \underline{25} + \underline{36} = 16$$

Center
(5, 6)

$$r = 4. = \sqrt{16}$$

20.

$$9x^2 - 54x + \underline{\quad} + 16y^2 + 32y + \underline{\quad} = 47$$

Factor!

$$9(x^2 - 6x + \underline{9}) + 16(y^2 + 2y + \underline{1}) = \underline{47} + \underline{81}$$

$$9(x^2 - 6x + 9) + 16(y^2 + 2y + 1) = 81$$

$$\frac{9(x-3)^2}{144} + \frac{16(y+1)^2}{144} = \frac{144}{144}$$

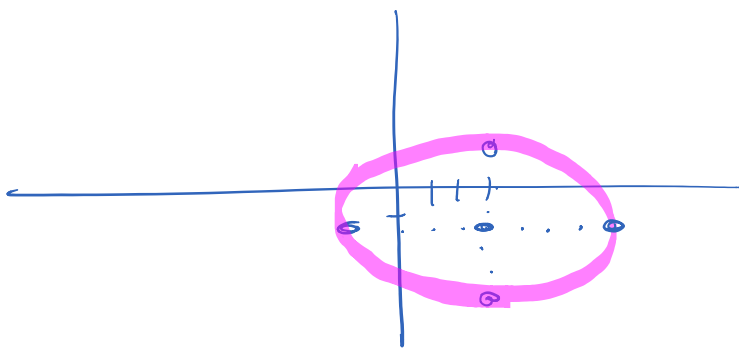
Ellipses = 1

$$\frac{(x-3)^2}{16} + \frac{(y+1)^2}{9} = 1$$

C: (3, -1)

↔ √16 = 4

↕ √9 = 3



21

H.

$$16(y^2 - 8y + 16) - 4(x^2 - 16x + 64) = 64$$

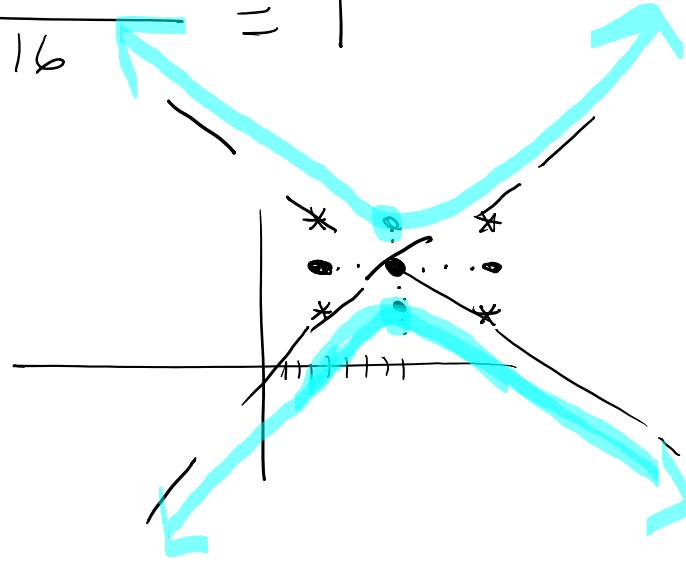
+256
-256

$$\frac{16(y-4)^2}{64} - \frac{4(x-8)^2}{64} = \frac{64}{64}$$

$$\frac{(y-4)^2}{4} - \frac{(x-8)^2}{16} = 1$$

$$C: (8, 4)$$

$$\begin{aligned} \longleftrightarrow \sqrt{16} &= 4 \\ \updownarrow \sqrt{4} &= 2 \end{aligned}$$



23. $6y^2 - 2x - 24y + 10 = 0$

$$6y^2 - 24y = 2x - 10 + 24$$

$$6(y^2 - 4y + 4)$$

$$6(y-2)^2 = 2x - 14$$

Isolate x .

$$\frac{6(y-2)^2 + 14}{2} = \frac{2x}{2}$$

$$3(y-2)^2 + 7 = x$$

$$x = 3(y-2)^2 + 7$$

$$Vtx: \\ (7, 2)$$

$$a = 3$$

