

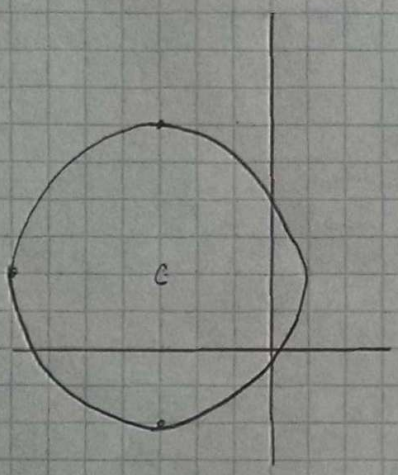
I Test 6.2 Review

① $x^2 + y^2 + 6x - 4y = 3$

$$x^2 + 6x + \underline{9} + y^2 - 4y + \underline{4} = 3 + \underline{9} + \underline{4}$$

$$(x+3)^2 + (y-2)^2 = 16$$

center: $(-3, 2)$ radius: 4



② center $(-2, 3)$ radius 16

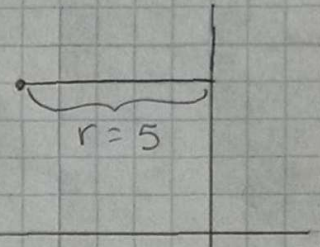
$$(x+2)^2 + (y-3)^2 = 256$$

③ center $(6, -4)$ radius 3

$$(x-6)^2 + (y+4)^2 = 9$$

④ center $(-5, 4)$

$$(x+5)^2 + (y-4)^2 = 25$$



⑤ Center $(-4, 1)$ point $(1, 0)$

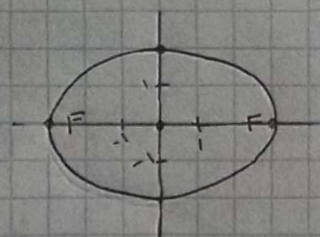
$$(1 - (-4))^2 + (0 - 1)^2 = r^2$$

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

$$(x+4)^2 + (y-1)^2 = 26$$

II

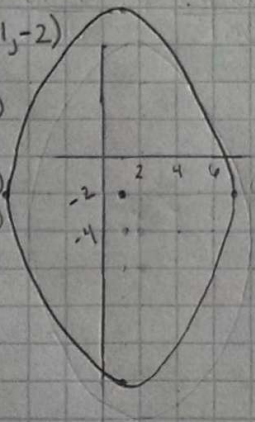
⑥ $\frac{x^2}{9} + \frac{y^2}{4} = 1$



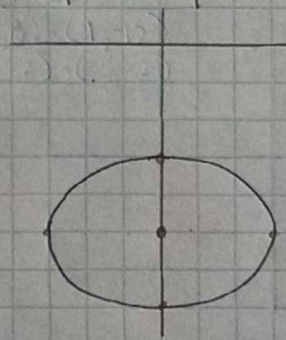
center $(0, 0)$
 Vertices $(\pm 3, 0)$
 Co-Vertices $(0, \pm 2)$
 foci: $(\pm \sqrt{5}, 0)$

⑦ $\frac{(x-1)^2}{36} + \frac{(y+2)^2}{100} = 1$

center $(1, -2)$
 V: $(1, 8)$
 $(1, -12)$
 CV: $(7, -2)$
 $(-5, -2)$
 F: $(1, -10)$
 $(1, 6)$



⑧ $\frac{4x^2}{36} + \frac{9(y+5)^2}{36} = \frac{36}{36}$
 $\frac{x^2}{9} + \frac{(y+5)^2}{4} = 1$



Center $(0, -5)$
 V: $(3, -5)$ and $(-3, -5)$
 CV: $(0, -3)$ and $(0, -7)$
 F: $(\pm \sqrt{5}, -5)$

⑨ a: horizontal distance from center
 b: vertical distance from center
 f: distance from center to foci

⑩ center $(0, 0)$
 CV: $(0, \pm 7)$
 F: $(\pm 8, 0)$

⑫ center $(0, 0)$
 V: $(0, \pm 13)$
 F: $(0, \pm 12)$

⑬ $f^2 = a^2 - b^2$

center $(0, 0)$
 a = 7
 b = 7
 f = 8

$$\frac{x^2}{113} + \frac{y^2}{49} = 1$$

$$f^2 = a^2 - b^2$$

$$8^2 = a^2 - 7^2$$

$$a^2 = 113$$

center $(0, 0)$
 a = 13
 b = 7
 f = 12

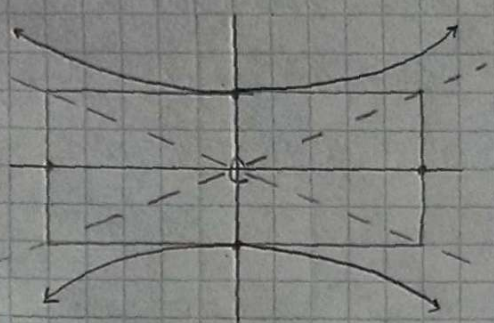
$$\frac{x^2}{169} + \frac{y^2}{25} = 1$$

$$f^2 = a^2 - b^2$$

$$12^2 = 13^2 - b^2$$

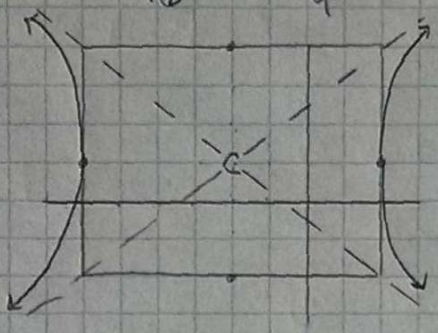
$$b^2 = 25$$

13) $\frac{y^2}{4} - \frac{x^2}{25} = 1$



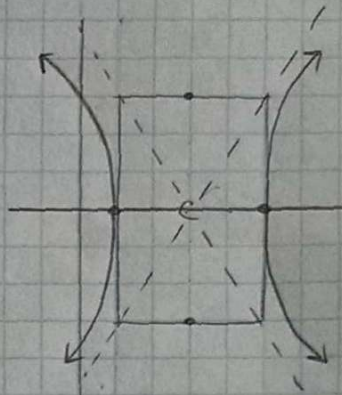
Center (0,0)
 V: (0, ±2) CV: (±5, 0)
 F: (0, ±√29) Asym: (0, ±√29)

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



center: (-2, 1)
 V: (-6, 1) + (2, 1) CV: (-2, 4) + (-2, -2)
 F: (-7, 1) + (3, 1) Asy: $y = \pm \frac{3}{4}(x+2) + 1$

15) $\frac{9(x-3)^2}{36} - \frac{4y^2}{36} = \frac{36}{36}$
 $\frac{(x-3)^2}{4} - \frac{y^2}{9} = 1$



center: (3, 0)
 V: (1, 0) + (5, 0)
 CV: (3, 3) + (3, -3)
 F: (-6, 0) + (6, 0)
 Asy: $y = \pm \frac{3}{2}(x-3)$

16) a: distance from center to vertex
 b: distance from center to co-vertex
 f: distance from center to foci

17) $a^2 + b^2 = f^2$

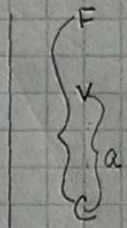
18) center (0,0) CV: (±5, 0) F: (0, ±7)

19) Center (2, 3), V: (2, 6) F: (2, 8)

Center (0,0)
 a = ?
 b = 5
 f = 7
 opens vertically

$f^2 = a^2 + b^2$
 $7^2 = a^2 + 5^2$
 $49 = a^2 + 25$
 $a^2 = 24$

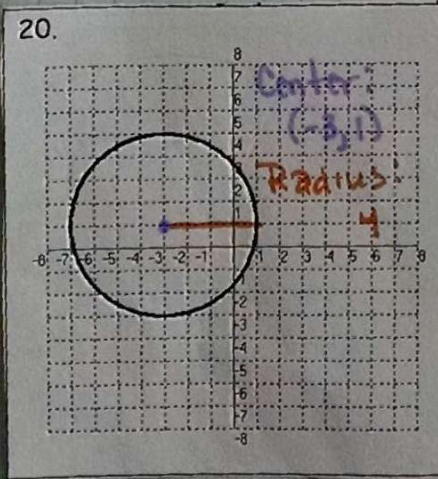
$\frac{y^2}{24} - \frac{x^2}{25} = 1$



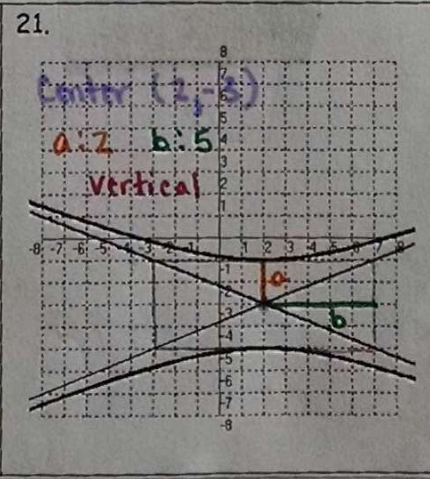
opens vertically
 a = 3
 b = ?
 f = 5

$f^2 = a^2 + b^2$
 $5^2 = 3^2 + b^2$
 $25 = 9 + b^2$
 $16 = b^2$

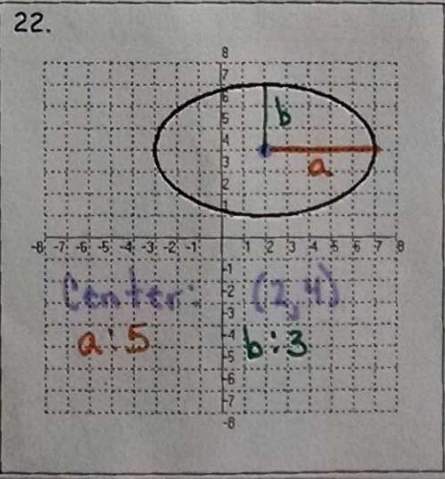
$\frac{(y-3)^2}{9} - \frac{(x-2)^2}{16} = 1$



$(x-h)^2 + (y-k)^2 = r^2$
 $(x-3)^2 + (y-1)^2 = 4^2$
 $(x+3)^2 + (y-1)^2 = 16$



$\frac{(y-h)^2}{a^2} - \frac{(x-h)^2}{b^2} = 1$
 $\frac{(y+3)^2}{4} - \frac{(x-2)^2}{25} = 1$



$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$
 $\frac{(x-2)^2}{25} + \frac{(y-4)^2}{9} = 1$