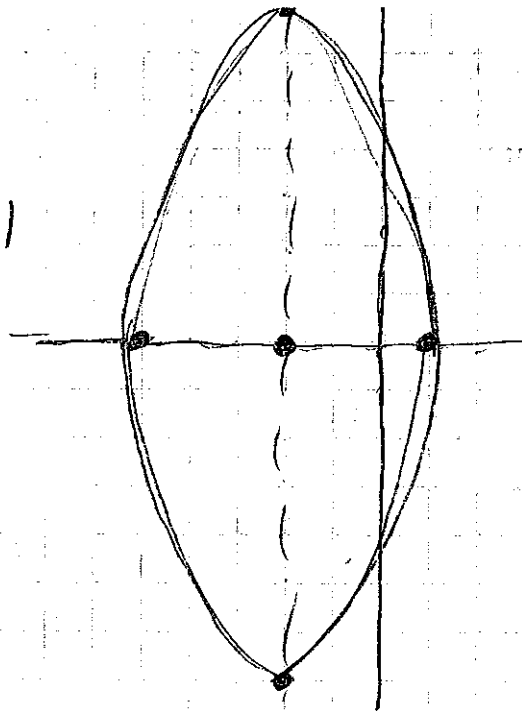


HW #52 p. 438

$$1. \frac{(x+2)^2}{9} + \frac{y^2}{49} = 1$$



$$C(-2, 0)$$

$$a=7$$
$$b=3$$

$$3. x^2 - 14x + 9y^2 + 36y = -49$$

$$(x-7)^2 - 49 + 9(y^2 + 4y) = -49$$

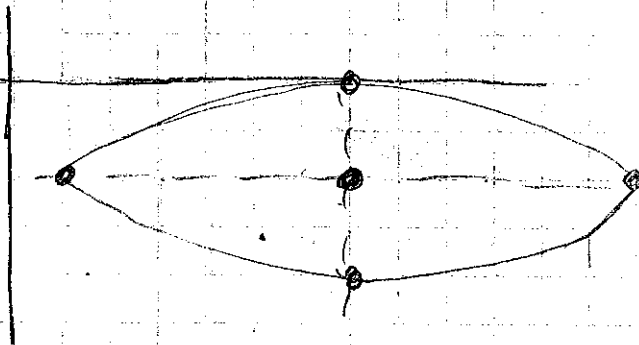
$$(x-7)^2 + 9[(y+2)^2 - 4] = 0$$

$$\frac{(x-7)^2}{36} + \frac{9(y+2)^2}{36} = \frac{36}{36}$$

$$\boxed{\frac{(x-7)^2}{36} + \frac{(y+2)^2}{4} = 1}$$

$$C(7, -2)$$

$$a=6$$
$$b=2$$



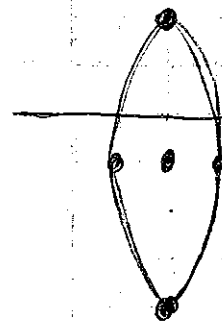
$$5. 9x^2 + 126x + y^2 + 2y = -433$$

$$9(x^2 + 14x) + (y+1)^2 - 1 = -433$$

$$9[(x+7)^2 - 49] + (y+1)^2 = -432$$

$$\frac{9(x+7)^2}{9} + \frac{(y+1)^2}{9} = \frac{9}{9}$$

$$\boxed{\frac{(x+7)^2}{1} + \frac{(y+1)^2}{9} = 1}$$



$$C(-7, -1) \quad a=3 \quad b=1$$

7.

$$\frac{(x-3)^2}{100} + \frac{(y+3)^2}{36} = 1$$

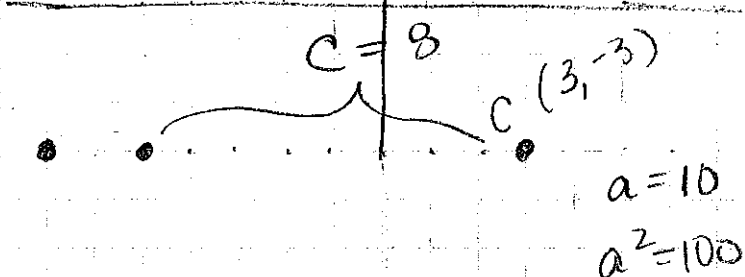
$$c^2 = a^2 - b^2$$

$$8^2 = 100 - b^2$$

$$b^2 = 100 - 64$$

$$b^2 = 36$$

$$b = 6$$



9.

$$a = 5 \quad c = 4$$

$$c(2, 2)$$

$$\frac{(x-2)^2}{25} + \frac{(y-2)^2}{9} = 1$$

$$16 = 25 - b^2$$

$$b^2 = 25 - 16$$

$$b^2 = 9$$

• focus

11.

$$a = 10$$

$$c = 6$$

$$c(-6, 3)$$

$$36 = 100 - b^2$$

$$b^2 = 100 - 36$$

$$b^2 = 64$$

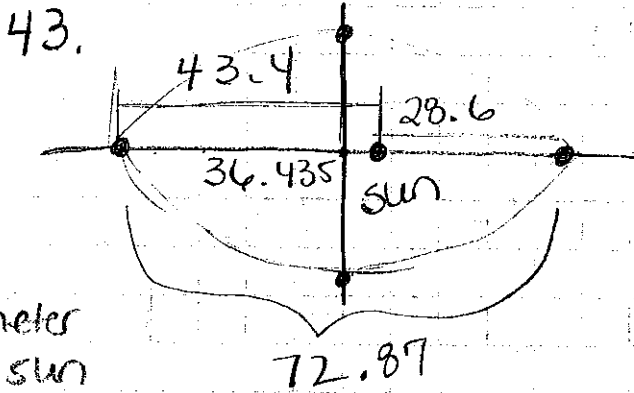
• focus

$$\frac{(x+6)^2}{64} + \frac{(y-3)^2}{100} = 1$$

$$13. \frac{(x-2)^2}{225} + \frac{(y-8)^2}{81} = 1$$

$$c = 12 \quad 225 - 144 = 81$$

$$a = 15$$



a. minor axis

$$\begin{array}{r} 36.435 \\ - 29.035 \\ \hline c = 7.4 \end{array}$$

$$\begin{array}{r} .87 = .435 \\ \hline + 28.6 \\ \hline 29.035 \end{array}$$

diameter
of sun

$$870,000 \text{ miles} = 0.87 \text{ million miles}$$

$$7.4^2 = 36.435^2 - b^2$$

$$b^2 = 1272.75$$

$$b = 35.68$$

b. eccentricity

$$e = \frac{c}{a} = \frac{7.4}{36.435} = 0.203$$

minor axis length = 71.35 million miles

45.

$$\frac{x^2}{100} + \frac{(y+6)^2}{25} = 1$$

Center $(0, -6)$

foci $(\pm\sqrt{75}, -6)$

vertices $(10, -6)$

$(-10, -6)$

$$c = \sqrt{100 - 25} = \sqrt{75}$$

$$47. 65x^2 + 130x + 16y^2 = 975$$

$$65(x^2 + 2x) + 16y^2 = 975$$

$$65[(x+1)^2 - 1] + 16y^2 = 975$$

$$65(x+1)^2 - 65 + 16y^2 = 975$$

$$65(x+1)^2 + 16y^2 = 1040$$

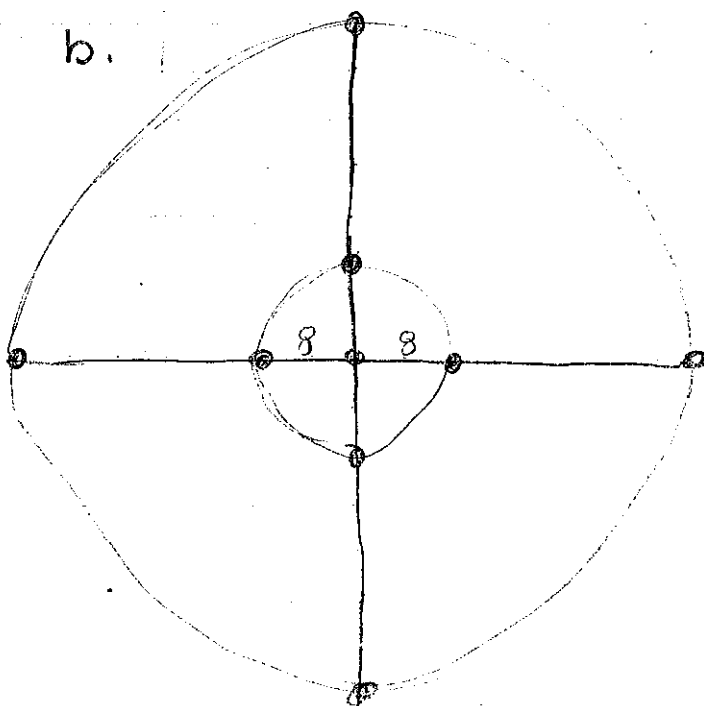
$$\frac{(x+1)^2}{16} + \frac{y^2}{65} = 1$$

Center $(-1, 0)$ foci $(-1, \pm 7)$

vertices $(-1, \sqrt{65})$ $(-1, -\sqrt{65})$

$$53. a. x^2 + y^2 = 64$$

$$x^2 + y^2 = 784$$



c. 5 days