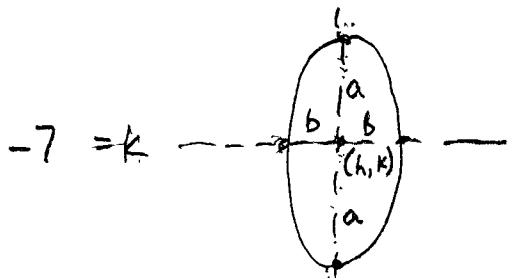


Algebra 2 TUES. 5-14-13 CLASS NOTES

(11) $\frac{(x-7)^2}{155} + \frac{(y+7)^2}{180} = 1$

Center \rightarrow mid
 Vertices
 Foci



h, k
 M (7, -7)
 center

$h = 7$

$a = \sqrt{180} = 6\sqrt{5}$
 $\sqrt{180} = \sqrt{10 \cdot 18} = \sqrt{2 \cdot 5 \cdot 2 \cdot 3 \cdot 3} = 2 \cdot 3 \sqrt{5} = 6\sqrt{5}$

Vertices (major)

$(7, -7 + 6\sqrt{5})$ $(7, -7 - 6\sqrt{5})$

CO-vertices or Vertices (minor)

$(7 + \sqrt{155}, -7)$ $(7 - \sqrt{155}, -7)$

$b = \sqrt{155}$

$\sqrt{155} = \sqrt{5 \cdot 31}$

Foci

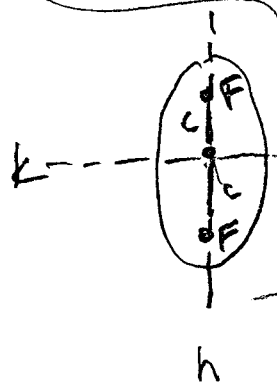
$c^2 = a^2 - b^2$

$c^2 = (\sqrt{180})^2 - (\sqrt{155})^2$

$c^2 = 25$

$c = +5$

Foci



Foci

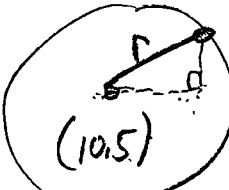
$(7, -2)$ $(7, -12)$

23) Center $(10, 5)$ ^{Circle} Point on Circle $(13, 8)$
 \uparrow \uparrow
 h, k

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

$$(x-10)^2 + (y-5)^2 = r^2$$

$(13, 8)$ $r^2 = (3)^2 + (3)^2 = 18$



$$(x-10)^2 + (y-5)^2 = 18$$

29

$$\frac{\sin \theta - \cos \theta}{\sin \theta} = \frac{\sin \theta}{\sin \theta} - \frac{\cos \theta}{\sin \theta}$$

$$= 1 - \cot \theta$$

27

$$\frac{\sin^2 \theta}{1 - \cos^2 \theta}$$

$$\sin^2 \theta + \cos^2 \theta = 1$$

$$\frac{\sin^2 \theta}{\sin^2 \theta} = 1$$

- (31) P varies directly with Q ,
 inversely with R ,
 and $P=9$ when $Q=3$ and $R=4$.

Find Q when $P=1$ and $R=0.5$?

$$P = \frac{kQ}{R}$$

$$\frac{4}{3} \cdot 9 = \frac{k \cdot 3}{4} \cdot \frac{4}{3}$$

$$12 = k$$

$$\therefore P = \frac{12Q}{R}$$

↓

$$1 = \frac{12Q}{0.5}$$

$$\frac{1}{24} = \frac{24Q}{24}$$

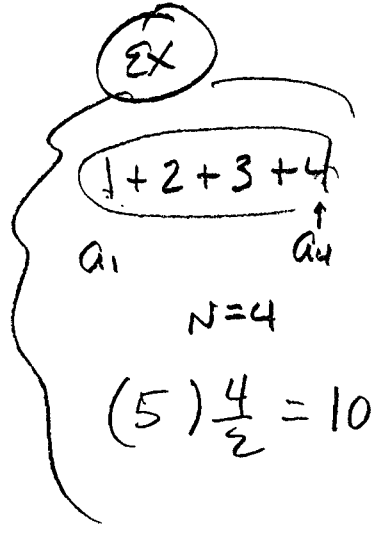
$$\frac{1}{24} = Q$$

(32) $\sum_{k=4}^{18} (7k-6)$

Arithmetic Series

SUM OF
Arithmetic
Series.

$$S = \frac{(a_1 + a_n) N}{2}$$



$$S = \frac{(22 + 120) 15}{2}$$

$$S = \frac{142 \cdot 15}{2}$$

$$S = 1065$$

$$\textcircled{39} \quad \sum_{k=1}^9 (-2)^{k-1}$$

* Sum of a geo. series

$$S_N = a_1 \left(\frac{1-r^N}{1-r} \right) \quad r \neq 1$$

$$a_1 = 1$$

$$N = 9$$

$$a_9 = (-2)^8 = 256$$

$$= (1) \left(\frac{1 - (-2)^9}{1 - (-2)} \right)$$

$$= \frac{1 - (-512)}{1 + 2} = \frac{513}{3}$$

$$\boxed{a_9 = 171} \quad -$$