Indicators assignment 1

$\boxed{1.01 \quad Ex\ 3}$

$$x^2 + y^2 - 6x + 4y - 36 = 0$$

$$x^2 - 6x \overset{+9}{} + y^2 + 4y \overset{+4}{} = 36 + 9 + 4$$

$$\boxed{(x-3)^2 + (y+2)^2 = 49 \qquad r = 7 \quad C(3,-2)}$$

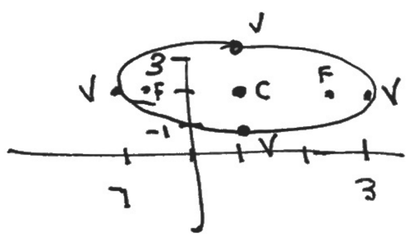
center: Translated right 3, down 2

$\boxed{1.02 \quad Ex\ 3}$

$$y = \tfrac{1}{12}x^2 \qquad \frac{1}{4a} = \frac{1}{4\left(\frac{1}{12}\right)} = \frac{1}{\frac{1}{3}} = 3$$

place receiver 3 ft above the dish.

$\boxed{1.02 \quad Ex\ 4}$



$$4y^2 - 2x - 16y = -13 - x^2$$

$$4y^2 - 16y + x^2 - 2x = -13$$

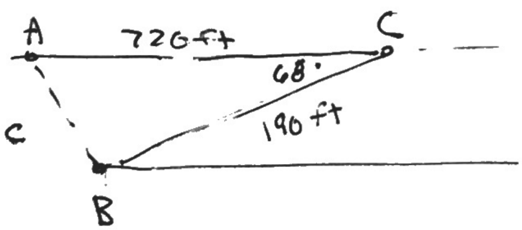
$$x^2 - 2x + 1 + 4(y^2 - 4y + 4) = -13 + 1 + 16$$

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

$$\boxed{\frac{(x-1)^2}{4} + \frac{(y-2)^2}{1} = 1 \quad \text{Ellipse}}$$

$$\boxed{C(1,2)}$$

$\boxed{1.03 \quad Ex\ 3}$

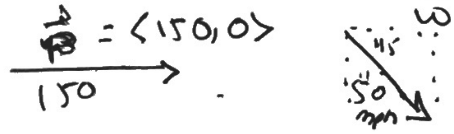


$$c^2 = 720^2 + 190^2 - 2(720)(190)\cos 68°$$

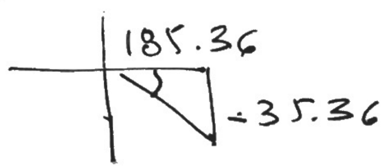
$$\boxed{c = 672 \text{ ft}}$$

$\boxed{1.03 \quad Ex\ 5}$

$$\vec{p} = \langle 150, 0 \rangle$$



$$\vec{w} = \langle 35.36, -35.36 \rangle$$



$$\vec{p} + \vec{w} = \langle 185.36, -35.36 \rangle$$

$$\tan^{-1}\left(\frac{35.36}{185.36}\right) = 10.8° \text{ south of east}$$

ol at end

$\boxed{2.02 \quad Ex\ 2}$

$f(x) = -\frac{1}{2}\sin(\pi/6 - 3x)$

$= -\frac{1}{2}\sin(-3x + \pi/6)$

$= -\frac{1}{2}\sin(-3(x - \pi/18))$

$= \frac{1}{2}\sin(3(x - \pi/18))$

* $\sin(-x) = -\sin(x)$

amp $= 1/2$
pd $= 2\pi/3$
ps $=$ right $\pi/18$

$\boxed{2.02 \quad Ex\ M}$

$2\sin^2\theta - \sin\theta - 3 = 0 \quad 0 \leq \theta \leq 2\pi$

$(2\sin\theta - 3)(\sin\theta + 1)$

$\sin\theta = 3/2$ $\quad$ $\sin\theta = -1$

$\emptyset$ $\quad$ $\boxed{3\pi/2}$

$\boxed{2.04 \quad Ex\ 2}$

$f(x) = \frac{x}{x-3}$ $\quad$ $g(x) = \frac{x+1}{2x}$

D: $\mathbb{R}, x \neq 3$ $\quad$ D: $\mathbb{R}, x \neq 0$

$(f \circ g)(x) = f(g(x)) = \dfrac{\frac{x+1}{2x}}{\frac{x+1}{2x} - 3}\left(\frac{2x}{2x}\right) = \frac{x+1}{x+1-6x} = \frac{x+1}{-5x+1}$

$x \neq 1/5$

D of $f(g(x))$
$= \mathbb{R}, x \neq 0, x \neq 1/5$

$\boxed{(-\infty, 0) \cup (0, 1/5) \cup (1/5, \infty)}$

$\boxed{2.05 \quad Ex\ 2}$

$r = 2 + 3\sin\theta \quad r = \sin\theta$

$2 + 3\sin\theta = \sin\theta$

$2\sin\theta = -2$

$\sin\theta = -1$

$\theta = 3\pi/2$ $\quad$ (r, θ)

$\boxed{(-1, 3\pi/2)}$

$\boxed{2.05 \quad Ex\ 4}$

$r = 6\cos\theta$

$r = 6\left(\frac{x}{r}\right)$ $\quad$ $r^2 = 6x$ $\quad$ $x^2 + y^2 = 6x$

$x^2 - 6x + 9 + y^2 = 0 + 9$

$\boxed{(x-3)^2 + y^2 = 9}$

$\boxed{2.06 \quad Ex\ 3}$

$x = t+4$ $\qquad$ $x = t+4$

$y = 3t-1$ $\qquad$ $y = 2t+9$

$x-4 = t$ $\qquad$ $x-4 = t$

$y = 3(x-4)-1$ $\qquad$ $y = 2(x-4)+9$

$y = 3x-13$ $\qquad$ $y = 2x+1$

$3x-13 = 2x+1$

$x = 14$ $\qquad$ intersect at $(14, 29)$

$\boxed{2.07 \quad Ex\ 8}$

$2.5 = \frac{2}{1-r}$

$2.5(1-r) = 2$

$2.5 - 2.5r = 2$

$-2.5r = -.5$

$r = .2$

$\boxed{2.08 \quad Ex\ 7}$

$\lim_{x \to 2} \frac{2x^2-4x}{x^2-4} = \frac{2x\cancel{(x-2)}}{\cancel{(x-2)}(x+2)} = \frac{4}{4} = 1$

$\lim_{x \to 5} \frac{\frac{1}{x} - \frac{1}{5}}{x-5}\left(\frac{5x}{5x}\right) = \frac{-\cancel{(x-5)}}{\cancel{(x-5)}(5x)} = \frac{-1}{5x}$

$= -1/25$

$\lim_{x \to \infty} \frac{4n^2-5n}{3n^2+4} = 4/3$

HA $y = 4/3$

$\boxed{2.01 \quad Ex\ 6}$

$x^2+1 = n$ for $x = -1$ and $\qquad$ $n = 5-x$ for $x = 3$

$1+1 = n$ $\qquad$ $n = 5-3$

$n = 2$ $\qquad$ $\therefore n = 2$

$n = 2$