Q_3

1, Applet constructed.

2, (i) The y - coordinate of the Point P is $\sin a$

   Put $a = 0.5$

   $\sin(0.5) = y(P) = 0.48$

   (ii) Put $a = 2.5$ then $\sin(2.5) = y(P) = 0.6$

   (iii) Put $a = 3.5$ then $\sin(3.5) = y(P) = -0.35$

3, The x - coordinate of the Point P is $\cos a$

   (i) Put $a = 2.7$ then $\cos(2.7) = x(P) = -0.9$

   (ii) Put $a = 3.8$ then $\cos(3.8) = x(P) = -0.79$

   (iii) Put $a = 4.9$ then $\cos(4.9) = x(P) = 0.19$

4, (i) $\sin\left(\dfrac{32\pi}{5}\right) = \sin\left(\dfrac{30\pi + 2\pi}{5}\right) = \sin\left(\dfrac{30\pi}{5} + \dfrac{2\pi}{5}\right)$

$= \sin\left(6\pi + \dfrac{2\pi}{5}\right)$ since $\sin(2n\pi + x)$

$= \sin\left(\dfrac{2\pi}{5}\right)$ $= \sin x$

Put $a = \dfrac{2\pi}{5}$ then $\sin\left(\dfrac{2\pi}{5}\right) = y(P) = 0.95$

$\therefore \sin\left(\dfrac{32\pi}{5}\right) = 0.95$

(ii) $\cos\left(\dfrac{21\pi}{5}\right) = \cos\left(\dfrac{20\pi + \pi}{5}\right) = \cos\left(4\pi + \dfrac{\pi}{5}\right)$

$= \cos\dfrac{\pi}{5}$ since $\cos(2n\pi + x) = \cos x$

Put $a = \dfrac{\pi}{5}$ then $\cos\dfrac{\pi}{5} = x(P) = 0.81$

$\therefore \cos\left(\dfrac{21\pi}{5}\right) = 0.81$

(iii) $\sin\left(\frac{13\pi}{5}\right) = \sin\left(\frac{10\pi + 3\pi}{5}\right)$

$$= \sin\left(2\pi + \frac{3\pi}{5}\right) = \sin\left(\frac{3\pi}{5}\right)$$

Put $a = \frac{3\pi}{5}$, then $\sin\left(\frac{3\pi}{5}\right) = y(P) = 0.95$

$\therefore \sin\left(\frac{13\pi}{5}\right) = 0.95$

5, (i) Input $\frac{1}{x(P)}$ and $a = 1.2$

Then $\sec(1.2) = 2.76$

(ii) Input $\frac{y(P)}{x(P)}$ and $a = 2.2$

Then $\tan(2.2) = -1.37$

(iii) Input $\frac{1}{y(P)}$ and $a = 4.2$

Then $\csc(4.2) = -1.15$