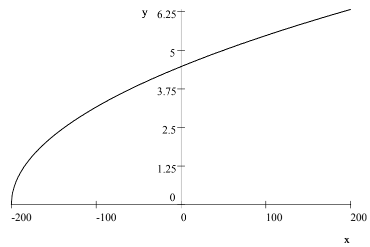
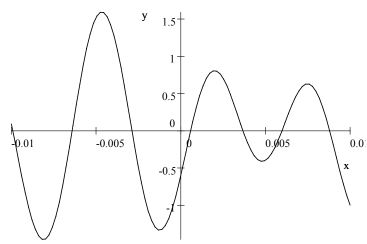
**(You must show all work to get credit. Always give appropriate units.)**

1. Use your calculator to get a useful view of the following functions. Sketch each curve below, label the axes, and write down the window you used (20 pts each).

   (a) $y = \sqrt{0.1x + 20}$ (15 for reasonable plot, 10 for any reasonable window to go with plot that gives a curve like this):

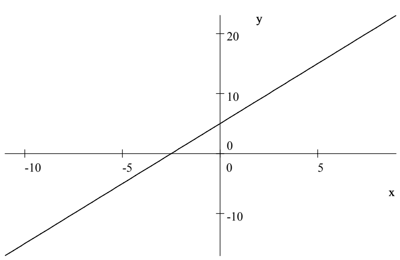


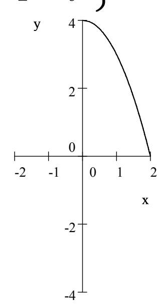
   (b) $y = \sin(1000x) - 0.6\cos(700x)$ (15 for reasonable plot, 10 for reasonable window to go with plot; the $x$-window should be something like $[-.01, .01]$).

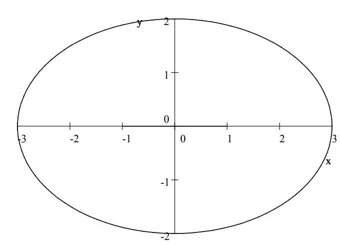


2. For each of the parametric curves below, draw a sketch on the axes provided (10pts each). Next, eliminate the parameter $t$ to give the relation between $y$ and $x$ for *any two of them* (10pts each).

$\left\{ \begin{array}{c} x = 2t - 1 \\ y = 4t + 3 \end{array} \right\} -5 \le t \le 5$ $\left\{ \begin{array}{c} x = \sqrt{t} \\ y = 4 - t \end{array} \right\} 0 \le t \le 4$ $\left\{ \begin{array}{c} x = 3\cos t \\ y = 2\sin t \end{array} \right\} 0 \le t \le 2\pi$







For the first: $t = \dfrac{x+1}{2}$, so $y = 4\left(\dfrac{x+1}{2}\right) + 3 = 2x + 5$. For the second, $t = x^2$, so $y = 4 - x^2$. For the last, $\dfrac{x}{3} = \cos t$ and $\dfrac{y}{2} = \sin t$; thus, $\left(\dfrac{x}{3}\right)^2 + \left(\dfrac{y}{2}\right)^2 = 1$.

NOTE: In this last set of parametric equations, you could write $t = \arccos(x/3)$, so that $y = 2\sin(\arccos(x/3))$. However, this doesn't work completely because, by definition, $0 \le \arccos\theta \le \pi$, so $y$ can never be negative, being the sine of an angle between 0 and $\pi$. Thus, we would only get the *top half* of the ellipse (try it).