Each problem is worth 5 points. Show complete justification for full credit.

1. Give parametric equations \( x(t) \), \( y(t) \), and bounds for \( t \) that produce a line segment from (2,5) to (3,-7).

\[
\begin{align*}
x(t) &= 2 + t \\
y(t) &= 5 + (-12)t
\end{align*}
\]

2. Give parametric equations \( x(t) \), \( y(t) \), and bounds for \( t \) that produce the bottom half of a circle (centered at the origin) of radius 6 traversed counterclockwise.

\[
\begin{align*}
x &= r \cos \theta \\
y &= r \sin \theta
\end{align*}
\]

3. Plot the vector field \( \mathbf{F}(x,y) = yi + j \) for the points \((0,0)\), \((2,1)\), \((0,2)\), \((1,-1)\), and \((-1,-2)\) indicated on the coordinate system below.

\[
\begin{align*}
\mathbf{F}(x,y) &= \langle y, 1 \rangle \\
\mathbf{F}(0,0) &= \langle 0, 1 \rangle \\
\mathbf{F}(2,1) &= \langle 1, 1 \rangle \\
\mathbf{F}(0,2) &= \langle 2, 1 \rangle \\
\mathbf{F}(1,-1) &= \langle -1, 1 \rangle \\
\mathbf{F}(-1,-2) &= \langle -2, 1 \rangle
\end{align*}
\]