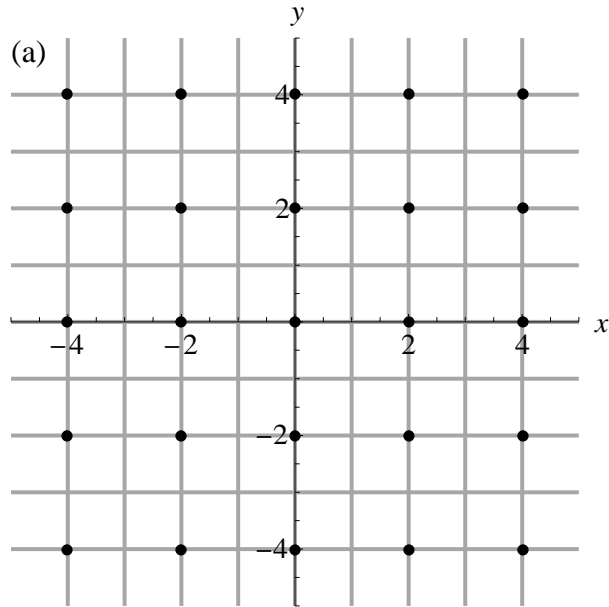


Vector Fields

Name: _____

For each vector field $\mathbf{F}(x, y)$, (a) calculate and draw the vector corresponding to several points on the grid, (b) determine whether the vector field is conservative, and (c) if the vector field is conservative, find the potential function $f(x, y)$.

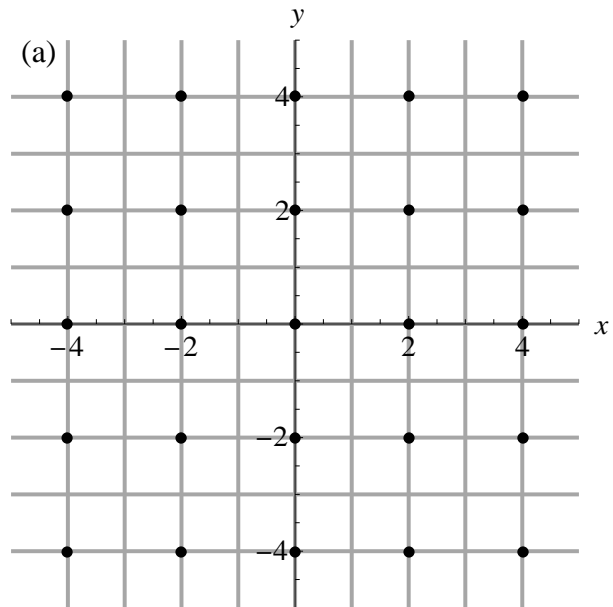
(1) $\mathbf{F}(x, y) = (x + y)\mathbf{i} + (x - y)\mathbf{j}$



(b)

(c)

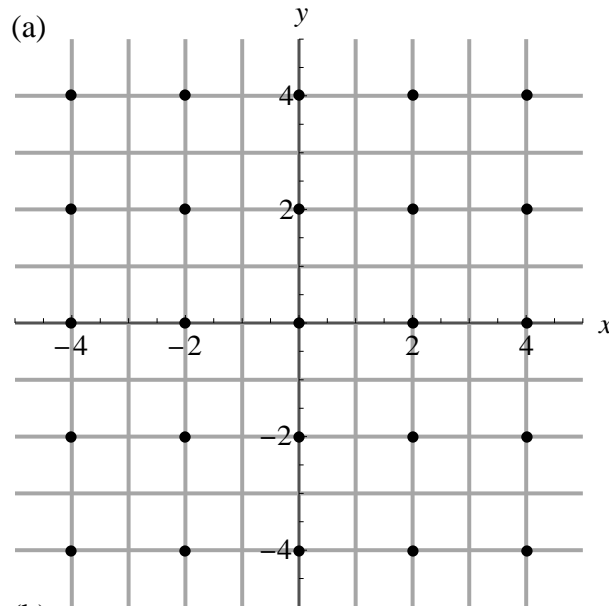
(2) $\mathbf{F}(x, y) = y\mathbf{i} + x\mathbf{j}$



(b)

(c)

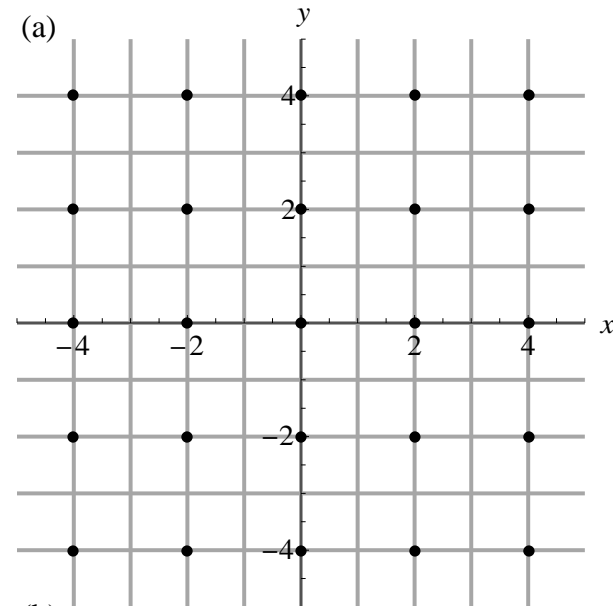
(3) $\mathbf{F}(x, y) = \left(\frac{x}{2} + y\right)\mathbf{i} + x\mathbf{j}$



(b)

(c)

(4) $\mathbf{F}(x, y) = \frac{xy}{4}\mathbf{i} + 1\mathbf{j}$



(b)

(c)