Problems: Two Dimensional Curl

Imagine a flat arrangement of particles covering the plane. Suppose all the particles are moving in counterclockwise circles about the origin with constant angular speed ω.

Let $\mathbf{F}(x, y)$ be the velocity field described by the velocity of the particles at point (x, y). Find $\mathbf{F}$ and show $\text{curl}(\mathbf{F}) = 2\omega$.

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