Homework 7 Supplementary Exercise - Math 241, Frank Thorne
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Due Friday, November 22, 2024

Instructions. Graph each vector field – by hand, using Desmos, or using any other tool you prefer. You *don't* need to copy the graphs – instead, briefly describe each graph, and say how it corresponds to its vector field.

If this appears on the quiz, you may be shown one graph and all of (a)-(f) below. The quiz will ask you to describe the vector field, identify which of (a)-(f) is the one graphed, and explain how you know.

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

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

(c) $\vec{\mathbf{F}}(x,y) = \cos(x)\vec{\mathbf{i}} - \sin(2y)\vec{\mathbf{j}}$

(d) $\vec{\mathbf{F}}(x,y) = -\frac{x}{x^2+y^2}\vec{\mathbf{i}} - \frac{y}{x^2+y^2}\vec{\mathbf{j}}$

(e) $\vec{\mathbf{F}}(x,y) = -\frac{y}{x^2+y^2}\vec{\mathbf{i}} + \frac{x}{x^2+y^2}\vec{\mathbf{j}}$

(f) $\vec{\mathbf{F}}(x,y) = -(y^2+2)\vec{\mathbf{i}} + 3\vec{\mathbf{j}}$