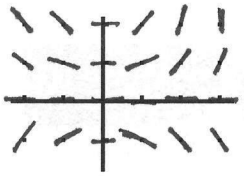
17. Consider the differential equation given by $\frac{dy}{dx} = \frac{xy}{2}$.

(A) On the axes provided, sketch a slope field for the given differential equation.



(B) Let f be the function that satisfies the given differential equation. Write an equation for the tangent line to the curve $y = f(x)$ through the point (1, 1). Then use your tangent line equation to estimate the value of $f(1.2)$. $y-1=\frac{1}{2}(x-1)$ $f(1.2) \approx 1.1$

SKIP (C) Find the particular solution $y = f(x)$ to the differential equation with the initial condition $f(1) = 1$. Use your solution to find $f(1.2)$.

SKIP (D) Compare your estimate of $f(1.2)$ found in part (b) to the actual value of $f(1.2)$ found in part

SKIP (E) Was your estimate from part (b) an underestimate or an overestimate? Use your slope field to explain why.

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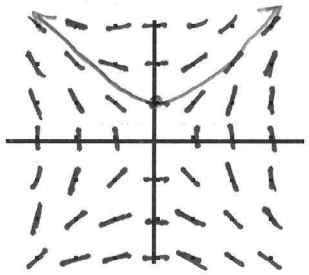
18. Consider the differential equation given by $\frac{dy}{dx} = \frac{x}{y}$.

(A) On the axes provided, sketch a slope field for the given differential equation.



(B) Sketch a solution curve that passes through the point (0, 1) on your slope field.

SKIP (C) Find the particular solution $y = f(x)$ to the differential equation with the initial condition $f(0) = 1$.

SKIP (D) Sketch a solution curve that passes through the point $(0, -1)$ on your slope field.

SKIP (E) Find the particular solution $y = f(x)$ to the differential equation with the initial condition $f(0) = -1$.