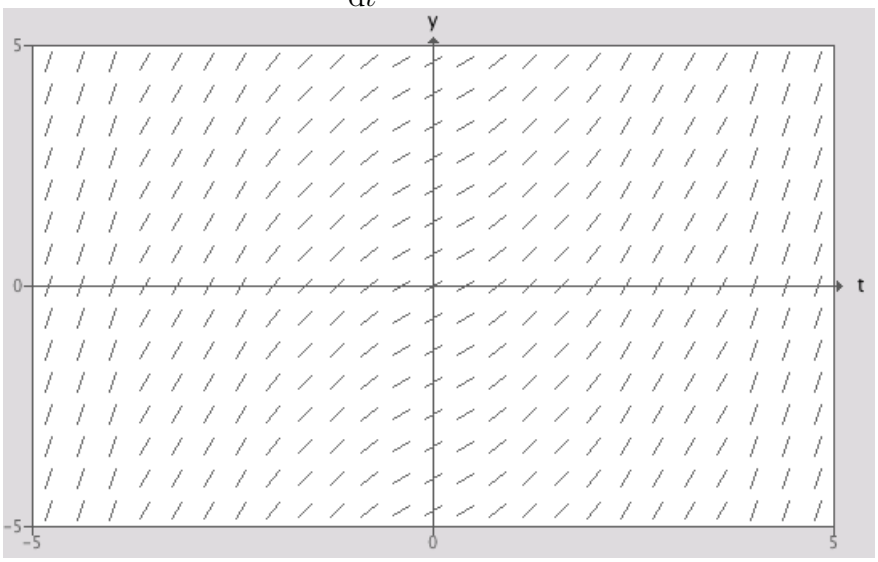
WEEKLY 11
APPLIED CALCULUS
DUE 11-05

Show your work!

(1) A man in a boat that is 2 miles from the shore wants to get to a point that is 3 miles down the shoreline. He will do this by rowing to a point on the shore, then walking along the shoreline. If he can row at 2 miles per hour, and walk at 4 miles per hour, then what path should he take?

(2) Below is the slope field for the derivative $\dfrac{\mathrm{d}y}{\mathrm{d}t} = \sqrt{t^2+1}$.



(a) Draw several solution curves (*i.e.*, several possible curves for y). What do these curves have in common?

(b) In the figure, y and t both vary from -5 to 5. If $y(0) = 0$, then what is the approximate value of $y(2)$? You may want to photocopy the figure above, and draw extra scale lines on it.

(3) The total cost of drilling an oil well consists of fixed costs of \$270000, and marginal costs of MC $= 360 + d$ dollars per foot, where d is the depth in feet. What is a formula for the total cost C in terms of d?

- **Two** book problems: #12.3.35, #13.1.43.