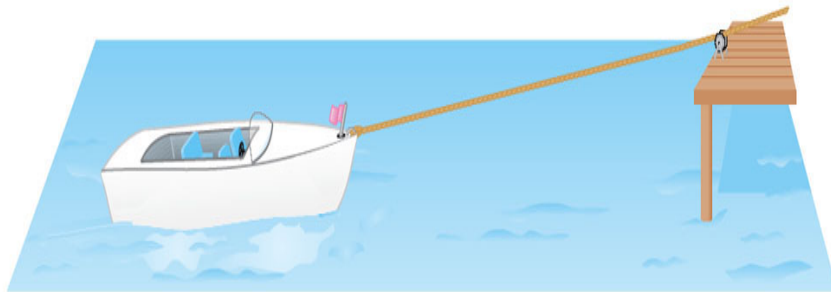


1. Suppose oil spills from a ruptured tanker and spreads in a circular pattern. If the radius of the oil spill increases at a constant rate of 1 m/s , how fast is the area of the spill increasing when the radius is 30 m ?
2. A boat is pulled into a dock by a rope attached to the bow of the boat and passing through a pulley on the dock that is 1 m higher than the bow of the boat. If the rope is pulled in at a rate of 1 m/s , how fast is the boat approaching the dock when it is 8 m from the dock?



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3. Let A be the area of the region that lies under the graph of $f(x) = e^{-x}$ between $x = 0$ and $x = 2$.
 - (a) Using right endpoints, find an expression for A as a limit. Do not evaluate the limit.
 - (b) Estimate the area by taking the sample points to be midpoints and using four subintervals and then ten subintervals.
4. P. 233 # 15
5. P. 234 # 32
6. P. 234 # 52
7. P. 262 # 2
8. P. 263 # 16