

### Quiz 3

- Two researchers are arguing over which model best fits the data set consisting of the points (1,2), (2,4), and (3,5). Researcher A thinks the best model is  $y = 2x$  (Model A). Researcher B thinks the best model is  $y = \frac{3}{2}x + \frac{1}{2}$  (Model B). Which one of the following is a reasonable claim? Circle the appropriate letter.
  - The sum of squared residuals for Model A is 1 while the sum of squared residuals for Model B is  $1/2$  so Model A is better than Model B.
  - The sum of squared residuals for Model A is 1 while the sum of squared residuals for Model B is  $1/2$  so Model B is better than Model A.
  - The sum of squared residuals for Model A is 1 while the sum of squared residuals for Model B is  $1/4$  so Model A is better than Model B.
  - The sum of squared residuals for Model A is 1 while the sum of squared residuals for Model B is  $1/4$  so Model B is better than Model A.
- A cylindrical popsicle melts in such a way that it remains a cylinder, with a constant rate of water dripping off it  $m_0$  (in mL per second). The length is always 6 times greater than the diameter. What is the rate of change of the length of the popsicle, expressed in terms of the other parameters? ( $V = \pi r^2 h$ )

- Give intervals on which  $f(x) = xe^{-x}$  is decreasing. (Use back of page if necessary.)