Rates of Change

**4.** Go to a financial website (for exmaple, [finance.google.com](http://finance.google.com/)), pick your favorite stock. By http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%28t%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%28t%29%257D%255Cend%257Bdisplaymath%257Ddenote the price at which the stock was exchanged at time http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bt%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bt%257D%255Cend%257Bdisplaymath%257Dwhere http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bt%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bt%257D%255Cend%257Bdisplaymath%257Dis measured in seconds from last Friday midday. What does http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%280%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%280%29%257D%255Cend%257Bdisplaymath%257Dmean? What does http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%287200%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%287200%29%257D%255Cend%257Bdisplaymath%257Dmean? Estimate the average rate of change of the stock for the following time intervals

Based on your calculations do you think the instantaneous rate of change of the price http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%28t%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%28t%29%257D%255Cend%257Bdisplaymath%257Dexist? Can you briefly describe in words the behavior of http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%28t%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bp%28t%29%257D%255Cend%257Bdisplaymath%257Dnear http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bt%253D0%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bt%253D0%257D%255Cend%257Bdisplaymath%257D.

**5.** An object is moving along the straight line as follows. It starts at http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D0%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D0%257D%255Cend%257Bdisplaymath%257Dand then it moves to the right to http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D2%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D2%257D%255Cend%257Bdisplaymath%257D. Then the objects moves to the left to http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D-3%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D-3%257D%255Cend%257Bdisplaymath%257D, and finally to the right to stop at http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D1%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bx%253D1%257D%255Cend%257Bdisplaymath%257D. Sketch a possible graph of the position function http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bs%28t%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bs%28t%29%257D%255Cend%257Bdisplaymath%257D. Sketch a possible graph of the velocity http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bv%28t%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bv%28t%29%257D%255Cend%257Bdisplaymath%257D(the instantaneous rate of change of http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bs%28t%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bs%28t%29%257D%255Cend%257Bdisplaymath%257D).