**Rates of Change**

**1.** Let http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bf%28x%29%2520%253D%25203%255E%257Bx%257D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bf%28x%29%2520%253D%25203%255E%257Bx%257D%257D%255Cend%257Bdisplaymath%257D. Tabulate the change of http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bf%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bf%257D%255Cend%257Bdisplaymath%257Dover the intervals (i) http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C3%255D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C3%255D%257D%255Cend%257Bdisplaymath%257D,      (ii)http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C2%255D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C2%255D%257D%255Cend%257Bdisplaymath%257D,      (iii)http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C-1%255D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C-1%255D%257D%255Cend%257Bdisplaymath%257D,      (iv) http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C1.4%255D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C1.4%255D%257D%255Cend%257Bdisplaymath%257D,      (v)http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C1.1%255D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%255B1%252C1.1%255D%257D%255Cend%257Bdisplaymath%257D. Graph http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257By%253D3%255E%257Bx%257D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257By%253D3%255E%257Bx%257D%257D%255Cend%257Bdisplaymath%257Dtogether with the secant line passing through http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%281%252Cf%281%29%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%281%252Cf%281%29%29%257D%255Cend%257Bdisplaymath%257Dand http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%281.1%252C%2520f%281.1%29%29%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257B%281.1%252C%2520f%281.1%29%29%257D%255Cend%257Bdisplaymath%257D.

Estimate how quickly http://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bf%28x%29%2520%253D%25203%255E%257Bx%257D%257D%255Cend%257Bdisplaymath%257Dhttp://calculus.sfsu.edu/latexrender/latex2image.php?data=%255Cbegin%257Bdisplaymath%257D%2520%255Ctextstyle%257Bf%28x%29%2520%253D%25203%255E%257Bx%257D%257D%255Cend%257Bdisplaymath%257Dis changing 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.