

Math 162**Quiz 8**

Show all work in a neat and organized fashion. Clearly indicate your answers.
10 points possible.

Use correct units!!

1. (3 pts.) The population density of Nevada from 1950 through 1990 can be approximated by the model

$$p(t) = 0.1273(1.05136)^t \text{ people/square mile}$$

where t is the number of years since 1900 (based on data from *State Rankings 1992. A Statistical View of the United States*. Lawrence, Kansas: Morgan Quitno Corporation, 1992).

Find the average rate of change in population density from 1970 through 1975.

2. (7 pts.) Find the derivative formula for each function.

(a) $y = x^5 - 12x^3$

(b) $y = 9$

(c) $y = x^4 + x + 7$

(d) $y = 8(5^x)$

(e) $y = 12 \ln x$

(f) $y = \frac{3}{x^7}$

(g) $y = \sqrt{x}$