

Quiz #5
Mathematics 140—Applied Calculus
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September 17, 2026

Directions: Carefully answer the questions below. Remember that your goal is to convince me that you know what is going on, so show your work! When relevant, round your final answers to 3 decimal places.

1. **Power Functions:** For each of the following functions:

- Determine whether it is a power function.
- If it is a power function, write it in the form $y = ax^p$ and identify the values of a and p .
- Sketch a graph of the function.

(a) $y = 2\sqrt[4]{x}$

(b) $y = \frac{9}{x^6}$

2. **Rate of Change:** If $r(5.2) = 7.1$ and the rate of change of r with respect to t is -0.23 , then estimate:

(a) $r(5.5)$

(b) $r(4.8)$

(c) If we wish to determine r to within ± 0.005 of a unit, determine the tolerance on t .