

Reading Questions for Sections 3.4 and 3.5

(22 pts)

Name _____

Due Date: _____

Bring this completed sheet with you to class on the due date to be handed in at the beginning of the period.

- (6) 1. Examine the functions P , Q , and R in **Section 3.4 Example 1** in **Figure 3.29** which are written in the form $y = ae^{kt}$.

Complete the table:

| | k | increasing or decreasing |
|-----|-----|--------------------------|
| P | | |
| Q | | |
| R | | |

- (6) 2. Each of the functions P , Q , and R in **Section 3.4 Example 1** in **Figure 3.29** can also be written in the form $y = a(b)^t$ for some numbers a and b . Complete the table. Give decimal answers for b , rounded as specified below. Do **not** give percents.

| | a | b (reported to two decimal places) |
|-----|-----|-----------------------------------------|
| P | | |
| Q | | |
| R | | |

- (3) 3. Study the three paragraphs prior to **Example 4** in **Section 3.4**, where the function $P = P_0e^{0.07t}$ is written as $P = P_0(1.0725)^t$ in the form $a(b)^t$, enabling us to say that a 7% **continuous rate** and a 7.25 % **annual rate** generate the same increases in P .

Now complete the last column with percents, rounded to the nearest integer %.

Note R has a negative growth rate.

| | Continuous Growth Rate | Annual Growth Rate |
|-----|------------------------|--------------------|
| P | 20% | % |
| Q | 30% | % |
| R | -20% | % |

- 4-5. Study the first paragraph in **Section 3.5 and Example 1**. Now consider this similar situation.

Imagine we deposit \$1000 into Accounts A and B.

Suppose **Account A** pays 52% interest once per year. (OK, you *are* using your imagination, yes?)

Account B pays 1% interest every week. (Note there are 52 weeks in a year.)

- (6) 4. Complete the table. If values are not exact, report them to **two decimal places**.

| | Amount at end of a year | Nominal Rate | Effective Rate |
|-----|-------------------------|--------------|----------------|
| A | \$ | % | % |
| B | \$ | % | % |

- (1) 5. Which account earns more at the end of 1 year? (Select one.)

A. **Account A**, which earns 52% once the whole year (or 52% compounded annually)

B. **Account B**, which earns 1% each week which is 52 times per year (or 52% compounded weekly)

C. Both accounts give the same amount