

Math 105-01
Fall 2019
Dr. Lily Yen

Quiz 6

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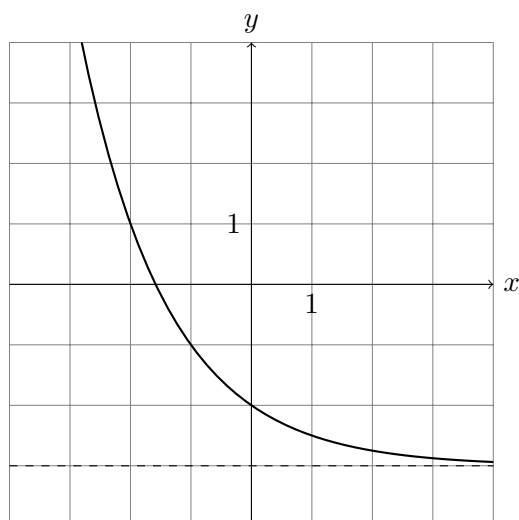
Family name: _____

Given name: _____

Student number: _____

Score: ____/16

Problem 1: Determine what sequence of transformations were applied on the graph of $y = 2^x$ to produce the graph below. State explicitly the function of the graph.



Problem 2: Determine whether each quantity below represents a linear or exponential growth.

- a. The value of a certain household item depreciates by \$100 per year.

- b. A school of fish is losing one-fourth of its population every two years.

- c. The concentration of a drug decreases by 5% every ten minutes.

Score: ____/3

Problem 3: A jar with a volume of 1000 cm^3 contains bacteria that double in number every minute. If the jar is full in 60 minutes, how long will it take for the jar to be one-eighth full?

Score: ____/2

Score: ____/2

/7

Problem 4: Find the domain of $f(x) = \ln \sqrt{x+5} - \ln(x+1)$.

Problem 6: In a lake, one-fourth of the water is replaced by clean water every year. A spill of $16\,000\text{ m}^3$ of toxic chemicals takes place in the lake. Let $T(n)$ denote the amount of toxin left in the lake after n years.

a. Find a formula for $T(n)$.

b. How much toxin will be left after 12 years?

c. When will 80 % of the toxins be eliminated?

Score: /2

Problem 5: At what annual rate of return, compounded continuously, would your investment double in six years?

Score: /2

Score: /5