



2. State whether the growth/decay is linear or exponential and answer the question.

(a) (12 points) The rent of an apartment increases by \$50 each year. If the rent for this apartment is \$2135 in 2012, find the monthly rent in 2022.

(b) (12 points) The average concentration of carbon dioxide in the Earth's atmosphere is increasing by 0.55% each year. If the average concentration was 405.5 parts per million (ppm) in 2017, find the average concentration in 2050.

3. (12 points) The population size of a certain colony of bacteria is observed to double every 3 hours. If there are 260 bacteria in the colony at 10 am, find the number of bacteria in the colony at 6pm, rounded to the nearest integer.

4. (12 points) The half-life of a drug in the human blood-stream is 16 hours. If 50 mg of the drug is injected into a patient, how much of the drug remains after 24 hours?

5. (a) (12 points) Assume that  $y$  is a *linear* function of  $x$  and fill in the following table of values.

$x$	$y$
0	100
1	105
2	
3	
4	
5	

- (b) (12 points) Assume that  $y$  is an *exponential* function of  $x$  and fill in the following table of values.

$x$	$y$
0	100
1	105
2	
3	
4	
5	