

Name: \_\_\_\_\_

Show work needed to justify your answer.

Date: \_\_\_\_\_

HW: # 38c: Math IBSL - Standard 37 - Exponents

5 points

- 4 The growth of a fungus on a tree is modelled by  $G(t) = 4500e^{0.3t}$ , where  $G$  cm<sup>2</sup> is the area covered by the fungus after  $t$  days.
- Find the initial area covered by the fungus.
  - Determine the area the fungus will cover after 10 days have passed.

a)  $4500 \text{ cm}^2$

b)  $G(10) = 4500e^{0.3(10)}$

$G(10) = 90385$

- 7 The value of a car decreases by 15% every year. Tatiana buys a new car for \$25 000.
- Write down a function to model the value of the car after  $t$  years.
  - Find the value of Tatiana's car after three years, to the nearest \$100.
  - Tatiana will sell the car when its value decreases to \$10 000. Use a graph to determine how old the car will be when Tatiana sells it.

a)  $y = 25000(0.85)^t$  or  $y = 25(0.85)^t$   
in 1000's

b)  $y = 25000(0.85)^3$   
 $y = 15,400$

c)  $10000 = 25000(0.85)^t$   
 $0.4 = 0.85^t$   
 $y_1$        $y_2$

$t \approx 5.64 \text{ yrs}$