Review session pt 1

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Exercise 1 When a certain medical drug is administered to a patient, the number of milligrams remaining in the patient's bloodstream after t hours is modeled by

$$D(t) = 50\exp[-0.2t]$$

How many milligrams of the drug remain in the patient's bloodstream after 3 hours?

Exercise 2 The initial size of a culture of bacteria is 2000. After 1 hour the bacteria count is 10000. Find a function $n(t) = n_o\exp[rt]$ that models the population after t hours and find the population after 2 hours.

Exercise 3 Solve the logarithm equation fo x

$$5\ln(3-x) = 4.$$

Exercise 4 Use the Laws of Logarithms to combine the expression into a single longarithm

$$\log(a) + 2\log(b).$$

Exercise 5 Give the range of the following function $f(x) = e^{x-5} + 6$.

Exercise 6 Which of the following functions shows a logarithmic function base e with a translation of 5 units left and 4 units downward andtends to minus infinity $(f(x) \to -\infty)$ whent the domain tends to 4 $(x \to 4)$,

- $f(x) = \log(x+5) + 4$
- $f(x) = \log(x-5) + 4$
- $f(x) = -\log(x+5) - 4$
- $f(x) = -\log(x+5) + 4$

Exercise 7 Write and use the change of base formula to compute the following,

$$\log_2\left[\frac{1}{2}\right].$$

Exercise 8   Usethe Laws of Epxonents to rewrite and simplify the expression

$$\left(\sqrt[4]{a}\right)^3.$$

Exercise 9   Expand and simplify

$$(4x-1)(3x+7)$$