

Math 170
Chapter 4 Review
Ms. Meier

1) Express in exponential form: $\text{Log}_4 16 = 2$

2) Solve for x : $\text{Log}_6 x = 3$

3) Use a calculator and evaluate: $\text{Ln}(1 + \sqrt{5})$

4) Use properties to evaluate the expression: $\text{Log}_3 189 - \text{Log}_3 7$

5) Write as a single logarithm: $\text{Log} 14 + \frac{1}{2} \text{Log} 3 - \log 2$

6) Expand as much as possible: $\text{Log}_7 \sqrt[8]{x^2 + 5}$

7) Solve to 4 decimal places: $e^{2-3x} = 12$

8) Solve for x : $\text{Log}(9x + 6) = 2$

9) Solve for x : $\text{Log}_2 2 + \text{Log}_2 x = \text{Log}_2 3 + \text{Log}_2 (x - 5)$

10) Solve for x : $\text{Log}_3 (x + 4) - \text{Log}_3 (x - 4) = 3$

11) Given the initial population of a certain species of fish is 14 million, and after 2 years the population was approximately 17.8 million. Find a function of the form $P(t) = P_0 e^{rt}$ to model the population. If this exponential growth continues, how many fish will there be after 10 years? (Round all values to two decimal places)

12) Sketch the function: state the domain and range and any intercepts: $f(x) = 2^{(x-4)}$

13) State the domain of $f(x) = \text{Log}(x + 3)$

Answers:

1) $4^2 = 16$

2) $x = 216$

3) 1.1744

4) 3

5) $\text{Log}_7 \sqrt{3}$

6) $\frac{1}{8} \text{Log}_7(x^2 + 5)$

7) $x = -0.1616$

8) $x = 94/9$

9) $x = 15$

10) $x = 56/13$

11) $p(t) = 14e^{0.12t}$, in 10years 46.48 million fish

12) Horizontal asymptote $y = 0$ or x-axis, y-intercept $(0, 1/16)$, no x-intercept, domain: all real numbers, range $y > 0$. [Note: graph contains the point (4,1)]

13) Domain: $x > -3$