Precalculus **Chapter 3 Test Review Worksheet Key**

1a. -3 **1b.** $\frac{1}{6}$ **1c.** $e^{-1.6} \approx 0.202$ **1d.** $\frac{\ln 25}{3} \approx 1.073$

1e. ln 2 ≈ 0.693, and ln 4 ≈ 1.386 **1f.** $\frac{\ln \frac{1}{3}}{-0.5} \approx 2.197$ **1g.** $\frac{e^{\frac{15}{4}}}{3} \approx 14.174$

1h. $e^6 - 8 \approx 395.429$ **1i.** $5e^4 \approx 272.991$ **1j.** x = 2; −6 is extraneous

1k. -104 **2.** 31.4 years **3.** 220.8 miles **4a.** 2.132 **4b.** 3.0331

5a. $-2 - log_2 3 \approx -3.585$ **5b.** ln 3 – 4 ≈ –2.901

6a. log 7 + 4log x **6b.** $\frac{1}{3}\log_7 x - \log_7 2 - 1$ **6c.** 2ln (y – 1) – 4ln 2

7a. $\log_6\left(\frac{y}{z^2}\right)$ **7b.** $\ln \frac{x^3}{(x+1)^2}$ **7c.** $\ln\left(\frac{(x-2)^5}{x^3(x+2)}\right)$

8a. [0, 18,000) **8b.** h = 18,000 **8c.** t ≈ 5.46 minutes

9. lnS = –0.103lnt + 4.433 (with first two points used) **10a.** 135 **10b.** ≈ 0.145 **10c.** –2

11. $11,311.48; $11,314.62; $11,316.20; $11,317.25; $11,317.77; $11,317.78

12a. right 4 units and up 6 units; Domain (–∞, ∞); Range (6, ∞); (0, 6.0625); y = 6

12b. left 13 and up 18; Domain (–13, ∞); Range (–∞, ∞); $(-13 + 10^{-18}, 0)$; x = –13

13a. 0.079 grams **13b.** 2538.837 grams