

9. $e^x = 5.1$

$$\ln e^x = \ln 5.1$$

$$x = \ln 5.1$$

$$x \approx 1.629$$

10. $e^{x-4} + 1 = 5$

$$e^{x-4} = 4$$

$$\ln e^{x-4} = \ln 4$$

$$x-4 = \ln 4 + 4$$

$$x \approx 5.386$$

11. $\frac{5}{5}e^{-7x} = \frac{23}{5}$

$$e^{-7x} = \frac{23}{5}$$

$$\ln e^{-7x} = \ln \left(\frac{23}{5}\right)$$

$$\frac{-7x}{-7} = \frac{\ln \left(\frac{23}{5}\right)}{-7}$$

$$x \approx -0.218$$

12. $200e^{x+5} - 3 = 60$

$$\frac{200e^{x+5}}{200} = \frac{63}{200}$$

$$e^{x+5} = 0.315$$

$$\ln e^{x+5} = \ln 0.315$$

$$x+5 = \ln 0.315 - 5$$

$$x \approx -6.155$$

ANSWERS: 1. 0.759 2. 0.317 3. -1.613 4. 2.358 5. -0.181 6. 2.642
 7. -3.819 8. 1.482 9. 1.629 10. 5.386 11. -0.218 12. -6.155