

Section 5.1

8. f is not one-to-one
28. $f^{-1}(x) = \frac{-3x+1}{x}$
30. $f^{-1}(x) = \frac{2x}{x-4}$
32. $f^{-1}(x) = \sqrt{\frac{x-2}{5}}$
46. a. The graphs intersect on the line $y = x$
 b. $D = [1, 10]$, $R = [0, 9]$
 c. $D_1 = [0, 9]$, $R_1 = [1, 10]$

Section 5.2

2. $x = 2$
42. \$4712.98
46. \$597.81

Section 5.3

2. a. f is increasing, y -int = 1, and does not cross the x -axis
 b. f is increasing and y -int = 2, does not cross the x -axis
8. $\approx \$12,037.78$

Section 5.4

2. a. $\log_3 243 = 5$ b. $\log_3 \frac{1}{81} = -4$
 c. $\log_c d = p$ d. $\log_7(100p) = x$
 e. $\log_3 \frac{P}{F} = -2x$ f. $\log_{0.9} \frac{1}{2} = t$
4. a. $3^4 = 81$ b. $4^{-4} = \frac{1}{256}$
 c. $v^q = w$ d. $6^3 = 2x - 1$
 e. $4^{5-x} = p$ f. $a^{\frac{3}{4}} = 343$
18. a. 7 b. -6 c. $\frac{5}{3}$
 d. -3 e. 8 f. $\frac{2}{3}$
 g. $5e$
20. $x = -\frac{3}{2}$
22. No solution ($x = -1$ is extraneous)
28. $x = \frac{1}{8}$
48. $f(x) = F(x+3)$
64. the year 2021
66. approx. 23.8 years

Section 5.5

4. $5 \log_a y + 2 \log_a w - 4 \log_a x - 3 \log_a z$
6. $\frac{1}{2} \log y - 4 \log x - \frac{1}{3} \log z$
10. a. $\log_4(3xz)$ b. $\log_4\left(\frac{x}{7y}\right)$
 c. $\log_4 \sqrt[3]{w}$
14. $\log y^4$
18. $x = \frac{13}{3}$
22. $x = \frac{2}{15}$
46. f is decreasing, x -int = 1 and does not cross the y -axis

Section 5.6

2. $x = \frac{\log 3}{\log 4} \approx 0.79$
12. $x = \frac{\log 1600}{\log \frac{5}{16}} = -\frac{\log 1600}{\log \frac{16}{5}} \approx -6.34$
18. $x = \frac{301}{195} \approx 1.54$
52. $t = \frac{\ln\left(\frac{A}{P}\right)}{n \ln\left(1 + \frac{r}{n}\right)}$
56. a. 7.21 hr. b. 3.11 hr.