Section 5.1

8. f is not one-to-one

28. $f^{-1}(x) = \dfrac{-3x+1}{x}$

30. $f^{-1}(x) = \dfrac{2x}{x-4}$

32. $f^{-1}(x) = \sqrt{\dfrac{x-2}{5}}$

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. ≈ $12,037.78

Section 5.4

2. a. $\log_3 243 = 5$ b. $\log_3 \dfrac{1}{81} = -4$

   c. $\log_c d = p$ d. $\log_7(100p) = x$

   e. $\log_3 \dfrac{P}{F} = -2x$ f. $\log_{0.9} \dfrac{1}{2} = t$

4. a. $3^4 = 81$ b. $4^{-4} = \dfrac{1}{256}$

   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. 5

    d. - 3   e. 8   f. $\dfrac{2}{3}$

    g. 5e

20. $x = -\dfrac{3}{2}$

22. No solution (x=-1 is extraneous)

28. $x = \dfrac{1}{8}$

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. $\dfrac{1}{2}\log y - 4\log x - \dfrac{1}{3}\log z$

10. a. $\log_4(3xz)$ b. $\log_4\left(\dfrac{x}{7y}\right)$

    c. $\log_4 \sqrt[3]{w}$

14. $\log y^4$

18. $x = \dfrac{13}{3}$

22. $x = \dfrac{2}{15}$

46. f is decreasing, x-int =1 and does not cross the y-axis

Section 5.6

2. $x = \dfrac{\log 3}{\log 4} \approx 0.79$

12. $x = \dfrac{\log 1600}{\log \dfrac{5}{16}} = -\dfrac{\log 1600}{\log \dfrac{16}{5}} \approx -6.34$

18. $x = \dfrac{301}{195} \approx 1.54$

52. $t = \dfrac{\ln\left(\dfrac{A}{P}\right)}{n\ln\left(1+\dfrac{r}{n}\right)}$

56. a. 7.21 hr.   b. 3.11 hr.