

Answers to Problems from section 1.6:

23. $f^{-1}(x) = \sqrt[3]{\ln(x)}$

26. $f^{-1}(x) = \ln\left(\frac{x-1}{x+1}\right)$

30. Reflect the graph of f about the line $y = x$. (Graph omitted here)

35. (a) 2. (b) 2.

49. (a) $x = 5 + \log_2 3$. (b) $x = \frac{1}{2}(1 + \sqrt{1 + 4e})$.

50. (a) $x = e^e$. (2) $x = \frac{\ln C}{a-b}$

52. (a) $x \in (e^2, e^9)$. (b) $x \in (-\infty, \frac{1}{3}(2 - \ln 4))$.

54. (a) The domain of f is (e^{-2}, ∞) . (b) $f^{-1}(x) = e^{e^x - 2}$. The domain of f^{-1} , as well as the range of f , is \mathbb{R} .

Answers to Problems from section 1.7:

6. (b) $y = -\frac{1}{9}(x-1)^2 + 2$.

11. (a) $y = \frac{1}{x}, 0 < x < 1, y > 1$. The curve is the portion of the hyperbola $y = 1/x$ with $y > 1$.

12. (a) $x^2 - y^2 = \sec^2 \theta - \tan^2 \theta = 1, x \geq 1$, or $x = \sqrt{1 + y^2}$. The curve is the right branch of the hyperbola $x^2 - y^2 = 1$.

16. $\left(\frac{x}{2}\right)^2 + (y-4)^2 = 1$. The motion of the particle takes place on an ellipse centered at $(0, 4)$. As t goes from 0 to $\frac{3\pi}{2}$, the particle starts at the point $(0, 5)$ and moves clockwise to $(-2, 4)$. [three-quarters of an ellipse].