

Hammack 4.1

④ $f(x) = 3^x + x^3$

$f^{-1}(4) = 1$ because $f(1) = 3^1 + 1^3 = 4$

$f^{-1}(17) = 2$ because $f(2) = 3^2 + 2^3 = 17$

$f^{-1}(54) = 3$ because $f(3) = 3^3 + 3^3 = 54$

$f^{-1}(-\frac{2}{3}) = -1$ because $f(-1) = 3^{-1} + (-1)^3 = \frac{1}{3} - 1 = -\frac{2}{3}$

$f^{-1}(1) = 0$ because $f(0) = 3^0 + 0^3 = 1$

Hammack 4.2

② $f(x) = \frac{1}{2^x}$

$f^{-1}(4) = -2$ because $f(-2) = \frac{1}{2^{-2}} = \frac{1}{\frac{1}{2^2}} = \frac{1}{\frac{1}{4}} = 4$

$f^{-1}(2) = -1$ because $f(-1) = \frac{1}{2^{-1}} = \frac{1}{\frac{1}{2}} = 2$

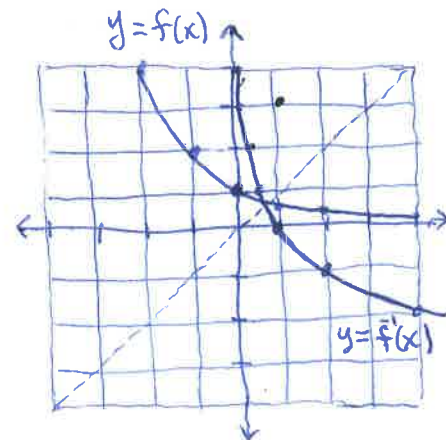
$f^{-1}(1) = 0$ because $f(0) = \frac{1}{2^0} = \frac{1}{1} = 1$

$f^{-1}(\frac{1}{2}) = 1$ because $f(1) = \frac{1}{2^1} = \frac{1}{2}$

$f^{-1}(\frac{1}{4}) = 2$ because $f(2) = \frac{1}{2^2} = \frac{1}{4}$

$f^{-1}(\frac{1}{8}) = 3$ because $f(3) = \frac{1}{2^3} = \frac{1}{8}$

$f^{-1}(\frac{1}{16}) = 4$ because $f(4) = \frac{1}{2^4} = \frac{1}{16}$



Hammack 4.3

⑩ $h(x) = \frac{2}{\sqrt[3]{x}}$, Find $h^{-1}(x)$.

$y = \frac{2}{\sqrt[3]{x}}$

$x = \frac{2}{\sqrt[3]{y}}$

$x^3 = \left(\frac{2}{\sqrt[3]{y}}\right)^3$

$x^3 = \frac{8}{y}$

$x^3 y = 8$

$y = \frac{8}{x^3}$

Therefore

$h^{-1}(x) = \frac{8}{x^3}$