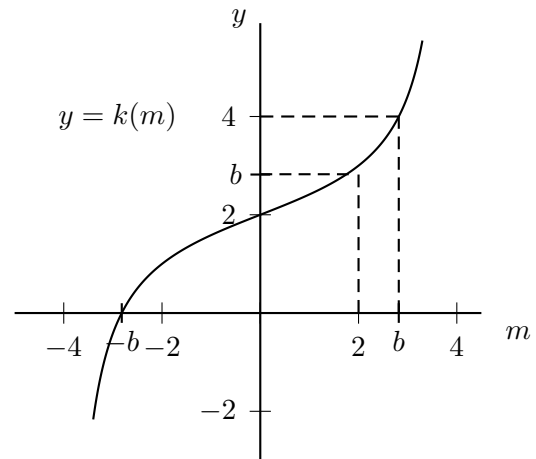


1. [20 points] Use the functions g , h , p , and k given below to answer the questions that follow.
Note: Some answers may involve the constant b .

t	-4	-2	0	2	4	6
$g(t)$	4	b	2	1	-2	$-b$

$$h(y) = \frac{2^y}{y^2 + 1}$$

$$p(x) = \begin{cases} (x+4)^2 - 5 & \text{for } -3 \leq x \leq -1 \\ 1.2(0.2)^x & \text{for } x > -1 \end{cases}$$



- a. [2 points] Evaluate $p(-1) + p(1)$.
- b. [2 points] Evaluate $p(k(0))$.
- c. [2 points] Evaluate $h(g(-2) + 2)$.
- d. [2 points] Solve $k(m) = b$ for m .
- e. [2 points] Assume g and k are invertible. Evaluate $g^{-1}(-2) + k^{-1}(0)$.

This problem continues on the next page.

This is a continuation of the problem from the previous page.

Recall that $h(y) = \frac{2^y}{y^2 + 1}$ and $p(x) = \begin{cases} (x + 4)^2 - 5 & \text{for } -3 \leq x \leq -1 \\ 1.2(0.2)^x & \text{for } x > -1. \end{cases}$

- f. [3 points] Find the domain of h . Use either inequalities or interval notation to give your answer. Please remember to show your work.

Domain:

- g. [3 points] Find the domain of p . Use either inequalities or interval notation to give your answers. Please remember to show your work.

Domain:

- h. [4 points] Find the range of p . Use either inequalities or interval notation to give your answers. Please remember to show your work; this includes sketching any graphs you use.

Range: