

(1) [4 points] Let $f(x) = 3 + 4x - x^2$. Evaluate and simplify the difference quotient

$$\frac{f(2+h) - f(2)}{h}$$

(2) [3 points] Determine the domain of

$$f(t) = 2\sqrt{t} + 5\sqrt[3]{t}$$

(3) [4 points] A rectangle has perimeter 20 m. Express the area of the rectangle as a function of the length x of one of its sides.

(4) [4 points] Neatly sketch the graph of $y = \sqrt{x - 2}$ by applying a function transformation to one of the standard functions discussed in class. Be sure to label and indicate the scale on the axes.