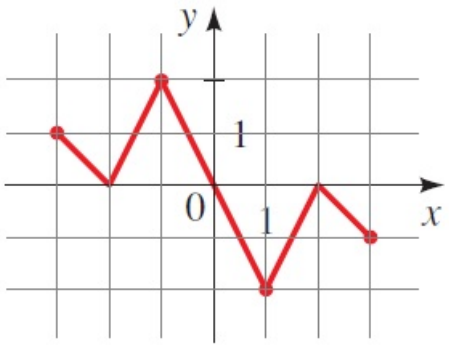
Worksheet 7

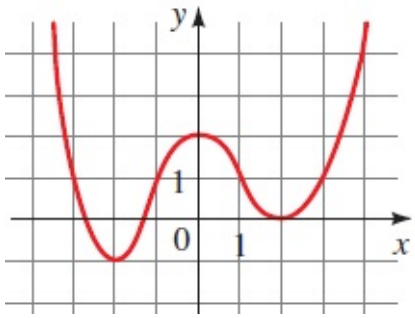
Sections 2.3, 2.4, and 2.5

Section 2.3

Problem 1. The graph of a function f is given below. Use the graph to estimate the following:
(a) The domain and range of f.
(b) The intervals on which f is increasing and on which f is decreasing.

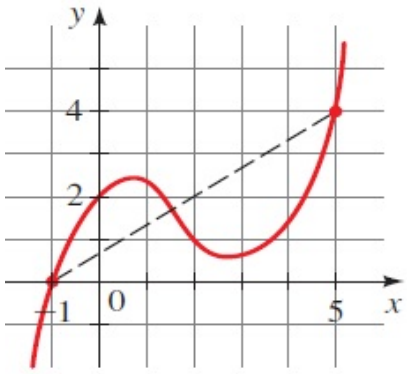


Problem 2. The graph of a function f is given below. Use the graph to estimate the following:
(a) All the local maximum and minimum values of the function and the value of x at which each occurs.
(b) The net change between $x = -2$ and $x = 2$.
(c) The intervals on which the function is increasing and on which the function is decreasing.



Section 2.4

Problem 3. The graph of a function f is given below. Determine
(a) the net change between the indicated points on the graph,
(b) the average rate of change between the indicated points on the graph.



Problem 4. Determine
(a) the net change, and (b) the average rate of change
between the given values of the variable.

$$g(x) = \frac{2}{x+1}; \quad x = 0,\ x = h.$$

Problem 5. A man is running around a circular track that is 200 m (meters) in circumfrence. An observer uses a stopwatch to record the runner's time at the end of each lap, obtaining the data in the table below.
(a) What was the man's average speed (rate) between 68 s (seconds) and 152 s?
(b) What was the man's average speed (rate) between 263 s and 412 s?
(c) Calculate the man's speed for each lap. Is he slowing down, speeding up, or neither?

Time (s)	Distance (m)
32	200
68	400
108	600
152	800
203	1000
263	1200
335	1400
412	1600

Section 2.5

Problem 6. Jacqueline leaves Detroit at 2:00 P.M. and drives at a constant speed, traveling west on I-90. She passes Ann Arbor, which is 40 mi (miles) from Detroit, at 2:50 P.M.
(a) Find a linear function d that models the distance (in miles) she has traveled after t minutes.
(b) Draw a graph of d. What is the slope of this line?
(c) At what speed (in mi/hr) is Jacqueline traveling?