(1) (Page 28, Problem 10) The graph of \( f(x) \) is given in the figure below on the interval \([-4, 4]\).

(a) State all of the intervals in which \( f(x) \) is decreasing and positive.

(b) Find the average rate of change between \( x = -2 \) and \( x = 2 \).

(c) The quantity \( \frac{f(4) - f(-1)}{6} = \) ________.

(d) What does the quantity \( \frac{f(4) - f(-1)}{6} \) represent geometrically?

(e) Circle the quantity that is greater \( f(-4) - f(1), \) or \( f(1) - f(4). \)

(f) Circle the quantity that is greater \( \frac{f(-2) - f(2)}{-2 - 2}, \) or \( \frac{f(-4) - f(1)}{-4 - 1}. \)
(2) Find a possible formula for any of the functions in the table below which could be linear.

<table>
<thead>
<tr>
<th>$t$</th>
<th>$g(t)$</th>
<th>$h(t)$</th>
<th>$k(t)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>32.40</td>
<td>4.2</td>
<td>1.5</td>
</tr>
<tr>
<td>-1</td>
<td>35.09</td>
<td>4.5</td>
<td>-9.0</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>4.8</td>
<td>-23.0</td>
</tr>
<tr>
<td>4</td>
<td>41.47</td>
<td>5.1</td>
<td>-26.5</td>
</tr>
<tr>
<td>6</td>
<td>49.48</td>
<td>5.4</td>
<td>-33.5</td>
</tr>
</tbody>
</table>
(3) (a) Find a formula for a linear function that has slope $-4$ and has $y$-intercept 9.

(b) Find a formula for a linear function that passes through the points $(-1, 6)$ and $(3, -8)$.

(c) The cost of a new Wild-Ride mountain bike is $1268. The bike’s value depreciates linearly to $743 in three years. Find a formula which expresses the value, $V$, in terms of its age, $t$, in years.
(4) (Page 51, Problem 22) Let $p$ represent the selling price in dollars of a certain type of toy and $q$ the number of toys (in thousands) which sell at that price. Market research indicates that if the toy costs $13.40 then 960 thousand toys are sold and if the price is $15.50 then 810 thousand toys are sold.

(a) Find a formula for $q$, as a linear function of $p$, and interpret the slope and the $p$ and $q$ intercepts in the context of this problem.

(b) According to this model, if toys were given away free, how many will be taken?

(c) If the company wishes to sell 1100 thousand toys, for what price should they sell the toy?
(5) Find the equation of the line shown below.
(Page 50, Problem 20) Tara has $60 and she wants to spend it all on pizza and soda from a local pizzeria. A pizza costs $12 and a six-pack of soda costs $4. The number of pizzas that Tara can afford, $p$, is a function of the number of six-packs of soda that she decides to buy, $s$. Indicate whether the following statements are TRUE or FALSE.

(a) The $p$-intercept is 5 and means that if no soda is purchased, Tara can buy 5 pizzas.

(b) The $p$-intercept is 15 and means that if no pizza is purchased, Tara can buy 15 six-packs of sodas.

(c) The $s$-intercept is 15 and means that if no pizza is purchased, Tara can buy 15 six-packs of soda.

(d) The slope is $-1/3$ and represents that for each pizza purchased per number of sodas purchased decreases by 3.

(e) The slope is $-3$ and represents that for every three six-packs of soda purchased the number of pizzas purchased declines by by 1.

(f) An equation that represents the information given above can be expressed as $15s + 5p = 60$.

(g) An equation that represents the information given above can be expressed as $s = -3p + 12$. 