The Pumpkin Pi Bakery

Pumpkin Pi, a bakery run exclusively by mathematicians, sells perfectly circular pies. The most popular pie is the Pumpkin Pi Pie. It sells for $19 a pie.

1. The number of pies made each day can vary.
    a. If they sell 15 pies in a day, how much money (revenue) will they bring in?

    b. If they brought in $513 from pie sales in a day, how many pies must they have sold?

    c. How much money will they bring in if they sell *n* pies in a day?

2. The bakery has fixed expenses per day like rent, equipment and utilities. This costs the bakery $85 per day. They also have a variable cost which is the price for ingredients which is $3.50 per pie.
    a. If the bakery makes 15 pies in a day, what is the total cost of expenses?

    b. If the bakery spent $179.50 in the total cost of expenses in a day, how many pies must they have made?

    c. How much are the total cost of expenses if they make *n* pies in a day?

3. The bakery's profit each day can be found by taking their revenue and subtracting their expenses.
    a. If the bakery sells 15 pies in a day, how much is their profit?

    b. What is the bakery's profit if they sell *n* pies in a day?

    c. What is the bakery's *profit per pie* if they sell 15 pies in a day?

    d. What is the bakery's *profit per pie* if they sell *n* pies in a day?

4. The bakery is deciding how many pies they should make. How will the profit per pie change based on the number of pies they make? Explain.

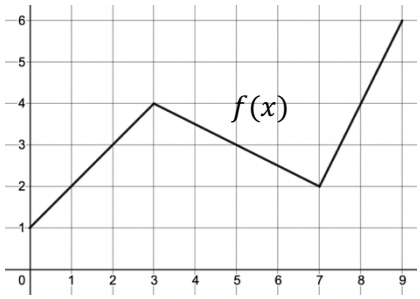
Lesson 4.4 – Combining Functions

QuickNotes

Check Your Understanding

1. The graph of a function $f(x)$ and a table of selected values for a function $h(x)$ are given. Let $g(x) = x^2 - 4$.

x	$h(x)$
0	7
1	4
2	-5
7	9
9	14



a. Find $h(2) + f(2)$ b. Find $g(7) * f(7)$ c. Find $\frac{g(5)}{f(5)}$

2. A square has a side length that is described by the function $s(x) = 2x + 1$.
   a. Use $s(x)$ to write a new function, $P(x)$, describing the perimeter of the square.

   b. Use $s(x)$ to write a new function, $A(x)$, describing the area of the square.

3. Given functions $f(x) = 2x$ and $g(x) = 3x^2 + x$, find each of the following and simplify.

   a. Find $f(x) - g(x)$

   b. Find $f(x) \cdot g(x)$