7B More Adding and Subtracting

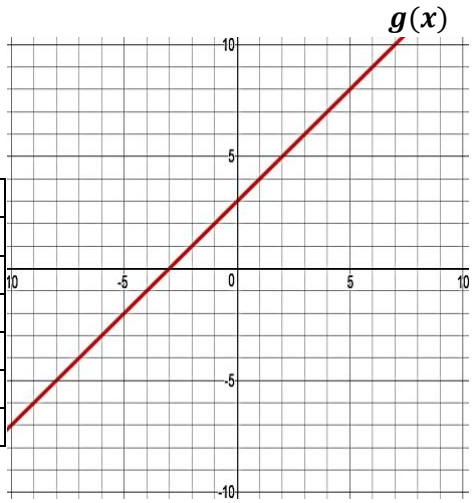
Name: _____Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

Due: January 9th / 10th

For each of the following functions, answer the questions below.

1. $\boldsymbol{f(x) = -2x - 2}$ and the line on the graph is $\boldsymbol{g(x)}$



a. Complete the table for the following functions.

x	$f(x)$	$g(x)$	$f(x)+g(x)$	$f(x)-g(x)$	$f(x)g(x)$
–3					
–2	2				
–1					
0					
1		4			
2					

b. Graph and label $f(x), f(x)+g(x)$ & $f(x)-g(x)$ on the grid

c. Write the equation for $f(x)+g(x)$ _____ and $f(x)-g(x)$ _____

d. How did you find your equations? _____

e. When you add two functions that are both lines, the result function is a _____

f. Plot the points for $f(x)g(x)$. When you **multiply** two functions that are both lines, the result function is a line. TRUE or FALSE? Explain: _____

g. Find $f(-3)$ = _____

h. Find $g(0)$ = _____

i. Find $f(-3)+g(0)$ = _____

j. Find $f(0)$ = _____

k. Find $g(-2)$ = _____

l. Find $f(0)+g(2)$ = _____

2. Given the equations $\boldsymbol{f(x) = x + 4}$ and $\boldsymbol{d(x) = 2x + 5}$, **find:**

a. $f(1)+d(2)$ _____

b. $f(-2)-d(3)$ _____

c. $f(x)+d(x)$ _____

d. $(f-d)(x)$ _____

e. Write an **expression** for $f(x)\cdot d(x)$

_____

Extra Credit: Multiply $f(x)\cdot d(x)$

_____

f. Write an **expression** for $\frac{f(x)}{d(x)}$ _____

3. Use the grid to the right to answer the following.

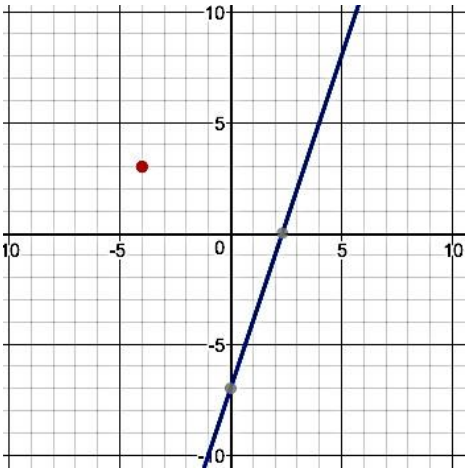
a. Write the equation of the graphed line. _____

b. Graph a line that is shifted up 6 units from the given line.

c. What is the equation of the line. _____

d. **Construct** (leave your construction marks) a line that is parallel to the given line through the point $(-4, 3)$.

e. Algebraically find the equation of the line.



4. Jill has a **regular** savings account that has $350 in it. She saves $55 each month in this account. Jill is also going on tour with her school choir next year. She opens up a new savings account to save for the tour. She deposits $25 to start the account and saves $40 each month into her tour savings account.
   a. Write an equation to represent the balance for Jill's **regular** savings account $r(x) =$ _____
   b. Write an equation to represent Jill's **tour** savings account $t(x)=$ _____
   c. Combine the two functions into one function to show the **total savings** for Jill: $r(x) + t(x) = s(x)$

      _____ + _____=_____

   d. Calculate Jill's **total** savings after 3 months, 6 months, and 10 months.
      i. Total saving after 3 months: $r(3) + t(3)\ OR\ s(3) =$ _____
      ii. Total after 6 months: $r(6) + t(6)\ OR\ s(6) =$ _____
      iii. Total after 10 months: $r(10) + t(10)\ OR\ s(10) =$_____

5. Joseph's Plumbing Company employs three workers. The following rates apply.
   - Joseph (owner): $75 (flat fee) + $65 per hour
   - Sam (an apprentice): is paid $10 flat fee and an additional $25 per hour.
   - Ellie: Earns a base pay of $50 and $45 each hour.

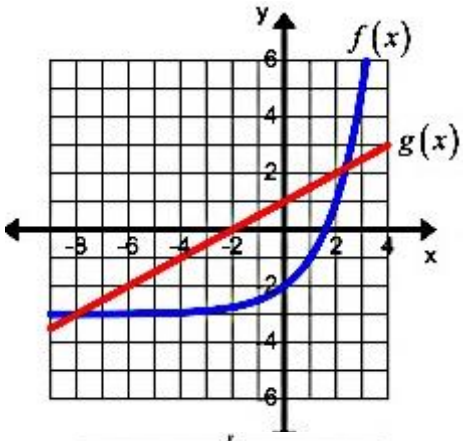
   a. Write three equations, one for each employee.

      $j(h) =$ _____ $s(h) =$_____ $e(h) =$_____

   b. Write a new equation to show the total amount of money coming in for the company in terms of hours worked. $(j + s + e)(h)\ OR\ j(h) + s(h) + e(h) =$_____

   c. Evaluate the equation if each employee were to work 10 hours.
      i. $j(10) + s(10) + e(10)\ OR\ (j + s + e)(10) =$_____

6. Use the graph to answer the following questions #6-#8.

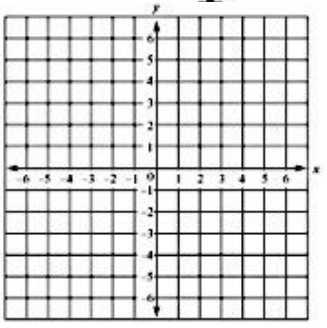


   a. Find: $f(2) =$ _____
   b. Find: $g(2) =$ _____
   c. Find: $f(2) + g(2) =$ _____
   d. Find: $f(0) =$ _____
   e. Find: $g(0) =$ _____
   f. Find: $f(0) + g(0) =$ _____

7. Make a table using the information from above.

	$f(x)$	$g(x)$	$f(x) + g(x)$	E.C. $f(x)g(x)$
0				
1				
2				

8. Using the same graph above (restrict the function to what is shown)
   a. What is the domain of $f(x)$? _____
   b. What is the domain of $g(x)$? _____
   c. What is the range of $f(x)$? _____
   d. What is the range of $g(x)$?_____



Extra Credit: Using the graph and table, sketch what $h(x)$ might look like if $h(x) = f(x) + g(x)$.