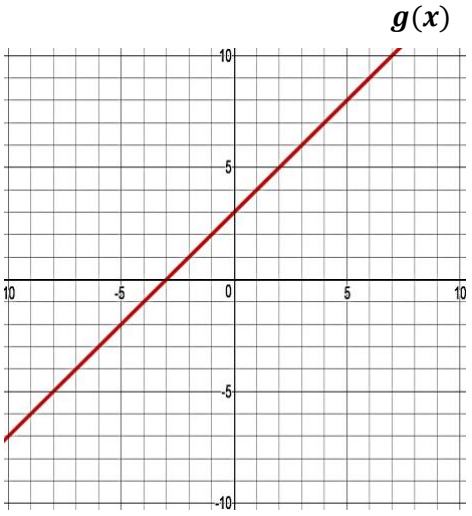
# 8B More Adding and Subtracting

Name: _____Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

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 $f(x), g(x), f(x) + g(x)$ & $f(x) - g(x)$

| $x$ | $f(x)$ | $g(x)$ | $f(x) + g(x)$ | $f(x) - g(x)$ |
|---|---|---|---|---|
| –3 | | | | |
| –2 | 6 | | | |
| –1 | | | | |
| 0 | | | | |
| 1 | | 4 | | |
| 2 | | | | |

b. Graph and label the three new functions 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. Find $f(-3)$ = _____

g. Find $g(0)$ = _____

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

i. Find $f(0)$ = _____

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

k. 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 $f(x) \cdot d(x)$

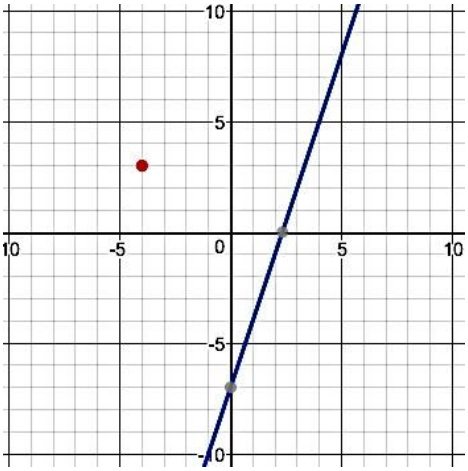
_____

**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. _____

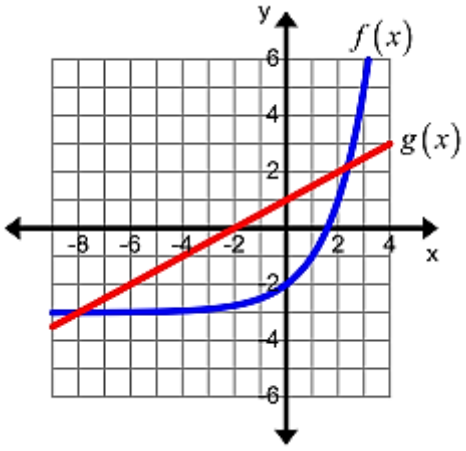
d. **Construct** (leave your construction marks) a line that is parallel to the given line through the point $(-4, 3)$.

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 from her paycheck 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: $r(3) + t(3)\ OR\ (r + t)(3) =$ _____
      ii. Total after 6 months: $r(6) + t(6)\ OR\ (r + t)(6) =$ _____
      iii. Total after 10 months: $r(10) + t(10)\ OR\ (r + t)(10) =$_____

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

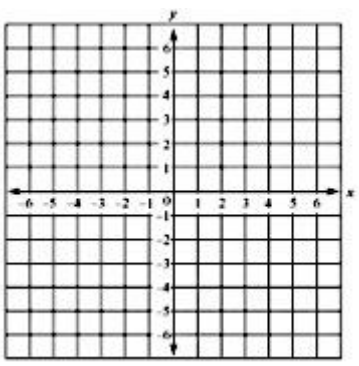
6. Use the graph to answer the following questions.




   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 | | | | |



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