

# Graphing Functions to Analyze a Paycheck

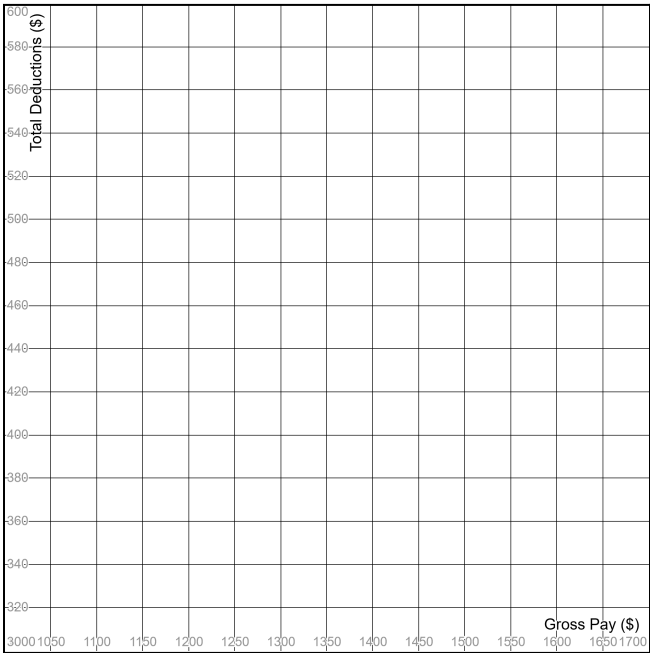
This activity teaches students to analyze a paycheck using linear functions by breaking down the components of a paycheck such as gross income, taxes, and deductions. By understanding linear functions, students can identify patterns in their paycheck and make informed decisions about their finances.

## PART 1

Sabah was able to model her current voluntary deductions for retirement and health insurance using the function  $f(x) = 0.10x + 375$  where  $x$  represents her gross income every two weeks. Sabah always makes at least \$500 in gross income during each two week pay period.

1. Create 5 ordered pairs by completing the table using Sabah's function.
2. Graph your ordered pairs on the coordinate plane & draw a straight line through the points.

x	f(x)
\$1125	
\$1250	
\$1300	
\$1575	
\$1600	



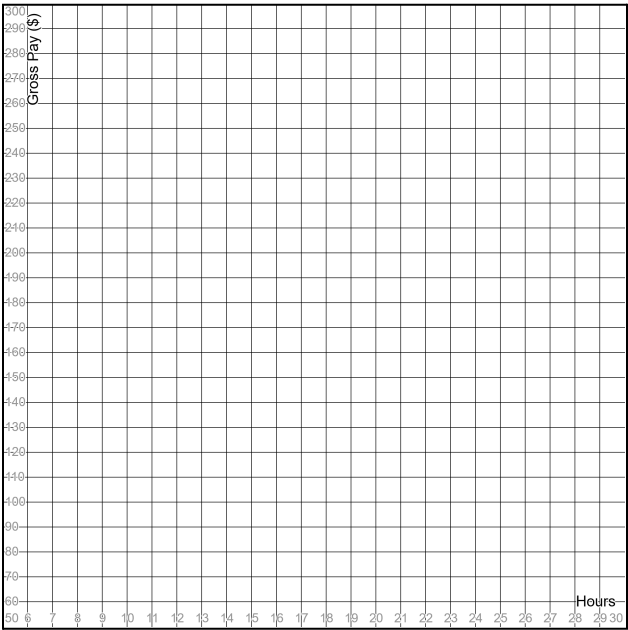
3. If  $x$  represents Sabah's gross income every two weeks, what would the domain be?
4. If  $f(x)$  represents Sabah's total deductions, what would a reasonable range be? (Hint: Think about what would happen if she made her minimum amount of gross income)

**PART 2**

Austin makes \$10 per hour working as a cashier at a bookstore. His employer requires him to work at least 10 hours per week and his current school schedule limits him to a maximum of 25 hours per week.

1. Write an equation that represents Austin's gross pay where  $x$  represents the number of hours he works per week and  $f(x)$  represents his gross pay.
2. What is the domain and range of this situation?
3. Create a list of 5 ordered pairs with the table below using your equation.
4. Graph your 5 points on the coordinate plane below.

$x$	$f(x)$
10	
13	
16	
19	
25	



### PART 3

Jerimiah is looking at his most recent paycheck. He knows that FICA taxes account for a 7.65% deduction in his gross pay. In addition, he has post-tax deductions for retirement and insurance premiums that total \$950.

1. Write an equation that represents Jerimiah's paycheck after ONLY FICA taxes are deducted. Use  $x$  to represent his gross salary and  $f(x)$  to represent his paycheck after deductions.
2. Expand your equation from part a to create an equation that represents Jerimiah's paycheck after BOTH FICA taxes and post-tax deductions have been deducted.
3. Use your equation to calculate Jerimiah's net pay after all deductions if he makes \$2,600 this pay period.
4. Jerimiah calculates that if he works all of the hours that he is offered, he can earn a maximum gross pay of \$2,850 per pay period. His employer has also guaranteed him a minimum of \$1,500 per pay period. State the domain and range of your equation.