Linear Equation Word Problems

A linear equation can always be written in the form y = mx + b.

mx is the variable term: What is the rate of change? Is it increasing or decreasing? Multiply or divide by x.

b is the constant term: What is the starting point? Add it to or subtract it from the variable term.

x is the variable you solve for - What did I input? What is independent?

y is after the equals sign - What is my output? What is dependent?

- Ex. 1 Sam has a Starbucks gift card worth \$15. He spends \$3 on every large cappuccino he buys. a. Define *x* and *y*.
 - b. Write a linear equation for the amount on his gift card.
 - Make a table for the scenario. C.

X:	Y:

d. Make a graph.



e. SOLVE an equation for how many cappuccinos he must have bought if he only has \$6 left?

f. How much money does he have on his gift card if he has bought 2 cappuccinos?

Ex. 2 Ciara earns \$8 per hour pet-sitting, but she owes her friend \$10.

- a. Define *x* and *y*. b. Write a linear equation for her money.
- b. If Ciara has \$22 after settling her debt, how many hours did she pet-sit?

c. How much money would Ciara have left if she pet-sit for 5 hours and settled her debt?

d. If Ciara has \$6 after settling her debt, how many hours did she pet-sit?

e. How much money would Ciara have left if she pet-sit for 8 hours and settled her debt?

Ex. 3 331 students went on a field trip. 6 buses were filled with students, and 7 students traveled in cars. How many students were in each bus? Write and solve a linear equation for the scenario.

 $\underline{Ex. 4}$ The sum of three consecutive numbers is 72. What is the smallest of these numbers? Write and solve a linear equation for the scenario.