$\qquad$ Pd $\qquad$ Date $\qquad$

## Linear Equation Word Problems

A linear equation can always be written in the form $y=m x+b$.
$m x$ 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 $-\underline{\text { What did I input? What is independent? }}$
$y$ 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.
c. Make a table for the scenario.
d. Make a graph.

| X: | Y: |
| :--- | :--- |
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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. 3331 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.

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.

