**CCM8 Systems of Equations: Writing Equations and Solving with Graphs**

When solving a system of equations, it is often helpful to write equations that can model the situations and then use those equations to make graphs. To solve the system, you have to find the point where the graphs intersect.

Examples

Use graphs to find the solutions to each system of equations.

1. In 2003 Jennifer had a cell phone plan that charged a base price of $30 per month and then $0.05 per text message. In the same year Kyle had a cell phone plan that charged a base price of $20 per month and then $0.10 per text message. If Jennifer and Kyle only sent text messages to each other, how many text messages would they need to send so that their phone bills would be the same?
2. Clay goes to a local gas station that is charging $3.00 per gallon of gas to put gas in his truck. While he is there he decides to get a car wash which costs an additional $8 at the gas station. Robert goes to a different gas station to put gas in his car. Robert’s gas station is charging $3.50 per gallon of gas. How many gallons of gas do Clay and Robert each have to buy so that they both get the same amount of gas and they pay the same amount at each gas station?



**Independent Practice**

Use graphs to find the solutions to each system of equations.

1. Kelly wants to buy personalized t-shirts for her friends. One company charges a flat rate of $20 per order and then $5 per shirt. The other company only charges $7 per shirt. When would both companies charge the same amount for the same number of shirts?



1. Susan buys a bag of candy that contains 40 snack size candy bars and eats 2 pieces of candy a day. Tom buys a bag of candy that contains 60 snack size candy bars and eats 4 pieces of candy each day. On what day will Tom and Susan have the same amount of candy?