Algebra 2 Ms. Brunsting

Lesson 4.4: Simultaneous Equations Practice



1. Spencer's Canoes rents a canoe for $8 per hour. Goyne's Canoe Livery charges a $20 non-refundable deposit plus $4 per hour.
    a. How much does it cost to rent a canoe from each place for:
        i. 1 hour
        ii. 2 hours
    b. Write an equation for each business that relates the cost to the number of hours the canoe is rented. Spencer's function should be called S(x) and Goyne's should be called G(x).
    c. Graph both lines on the same set of axes.
    d. Set the two equations equal to each other to find their break-even point.
    e. What does the break-even point represent in real life?
    f. If you were going on a 7-hour canoe trip, which business would be more affordable?

2. Abigail is starting a business selling imported hand-crocheted rugs. It will cost Abigail $8000 to rent a store and set up business, and each rug she makes will cost her $425 in supplies and time. She plans on selling the rugs for $900.



    a. What will Abigail's total expenses be for making 5 rugs? 10 rugs?
    b. Write an equation for Abigail's expenses. Call it E(x).
    c. What will Abigail's income be if she sells 5 rugs? 10 rugs?
    d. Write an equation for Abigail's income. Call it I(x).
    e. Set the two equations equal to each other to find her break-even point. How many rugs does Abigail have to sell to break even?

a. Daniel and Derrick are running a race. Daniel is older so he starts 24 feet behind the starting line. When Savara yells "Go!" Daniel and Derrick start running. Daniel runs at 8 feet per second and Derrick runs at 6 feet per second.
    a. Write an equation for Daniel's position with respect to time. Call it A(x).
    b. Write an equation for Derrick's position with respect to time. Call if B(x).
    c. If the finish line is 120 feet away, who will win the race?
    d. At what time will Daniel catch up to Derrick?



