MATH PRACTICE FOR ECONOMICS ✏️ ACTIVITY 1

ANALYZING TRADE-OFFS

*When making an economic decision, you need to be aware of all the costs involved. Suppose
you need to buy a car to get back and forth to work. Your choices are:*

  A. *A new subcompact costing $13,000,*

  B. *A 5-year-old car with 60,000 miles for $5,000, or*

  C. *An old junker with 150,000 miles for $800.*

*Which one should you choose? Complete the following exercises to find the initial costs and
the yearly costs of owning each car for 4 years.*

INITIAL COSTS

Some initial expenses of owning a car must be paid in cash. Typical costs for these items are shown in table 1.

  1. Complete table below. Use the car costs above and a sales tax rate of 5%.

Initial Expense	Cost for Car A	Cost for Car B	Cost for Car C
a. Title and registration	$100	$100	$100
b. Sales tax (Cost of car times 0.05)	$13,000 × 0.05 = $650		
c. 3 months of insurance	$350	$250	$220
d. Total initial cash costs	$1100		

  2. Assume that you have saved $2,000 for the purchase. How much of this money will you be able to put towards
the purchase price of each car?

    Car A: _____   Car B: _____   Car C: _____

  3. For cars A and B you will need to take out a loan. Find how much you need to borrow for each car.

    a. Loan for car A:_____   **b.** Loan for car B: _____

YEARLY COSTS

  4. Annual costs for a 4-year loan at 10% will be about $30 for each $100 borrowed (30/100 × amount borrowed
× 4). How much are the approximate total costs (4-year loan, plus downpayment, plus initial costs) for each car?

    _____

  5. Assume that at the end of 4 years Car A is worth $7000, Car B is worth $1000, and Car C is junk, having cost
$3,000 in extra repairs. Calculate your total costs by subtracting the value of Cars A and B from your costs and
adding $3,000 to C. Which car would you choose? Why?

    _____

MATH PRACTICE FOR ECONOMICS ✏️ ACTIVITY 2

Ⓜ️AKING A PROFIT

You and two of your friends are planning to run a concession stand at the park from Memorial Day to Labor Day. The three of you will share the work and the profits for the summer. The question is: Will there be any profits?

You are going to sell soda, lemonade, peanuts, and popcorn. You have a good idea of how much you will be able to sell because you have talked to the people who ran the stand the previous summer. You estimate that you can sell at least 200 sodas, 100 cups of lemonade, 50 bags of peanuts, and 300 bags of popcorn every week. You are going to charge 75¢ for soda, 50¢ for lemonade, $1 for peanuts, and 55¢ for popcorn.

Directions: *Follow these five steps to calculate your profits.*

Step 1: Figure below the amount of money you can expect to take in for one week.

Soda	$.75 × 200	=	**(1)** ———————
Lemonade	$——————— × ———————	=	**(2)** ———————
Peanuts	$——————— × ———————	=	**(3)** ———————
Popcorn	$——————— × ———————	=	**(4)** ———————
		One Week's Revenue	**(5)** ———————

Step 2: Now use the figure for the week to compute your expected revenue for the summer (14 weeks).
(6) ————————————————————————————————————

Does this figure represent your profits for the summer? **(7)** ————————————————————
Unfortunately, you will not just be taking in money. You will be paying out money for the food you will sell and to rent the stand. Most other businesses have many other expenses, including labor. Since you and your friends will work the stand yourselves, you will not have any labor costs. Your costs are just for food and rent.

You find out that it will cost $560 to rent the stand for the summer. You can buy a week's worth of soda for $90, lemonade for $25, peanuts for $50, and popcorn for $65. What will your costs for the summer be?

Step 3: Do your computations below:

Soda	$——————— × ———————	=	**(8)** ———————
Lemonade	$——————— × ———————	=	**(9)** ———————
Peanuts	$——————— × ———————	=	**(10)** ———————
Popcorn	$——————— × ———————	=	**(11)** ———————
Rent		=	**(12)** ———————
		Total Costs	**(13)** ———————

Step 4: Now that you have a reasonable estimate of both your total revenue and your total costs for the summer, use the following equation to project what your profits for the summer will be:

Revenue — Costs = Profit

(14) ——————— — ——————— = ———————

Step 5: Do not forget that the profits have to be split three ways. What will be your share of the summer's profits?
(15) ————————————————————————————————————