

Economics - Basics of Economics Lab - Math Key

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:

Car A. A new subcompact costing \$18,000

Car B. A 5-year-old car with 60,000 miles for \$8,000

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

Which one should you choose? Complete the following exercises to find costs of owning each car for 5 years.

Initial Cash Costs

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

14. Complete the table below. Use the car costs above and a sales tax of 9%.

Initial Expense	Cost for Car A	Cost for Car B	Cost for Car C
<i>A. Title and registration</i>	\$200	\$200	\$200
<i>B. Sales tax (cost of car x .09)</i>	$\$18,000 \times .09 = \mathbf{\$1,620}$	\$720	\$72
<i>C. 3 months insurance</i>	\$500	\$400	\$300
<i>D. Total initial cash costs</i>	\$2,320 (A + B + C)	\$1,320	\$572

Total Price

15. To find the total price of each car, add the price of the car to the initial cash costs. Write the amount below.

Car A: \$20,320

Car B: \$9,320

Car C: \$1,372

16. Assume that you have \$2,000 saved for the purchase. You have enough saved up to pay all cash for Car C. For Cars A and B, you will need to take out a loan. Find out how much you need to borrow for each car (total cost - \$2,000).

Car A: \$18,320

Car B: \$7,320

Interest Costs

17. The typical auto loan is 5 years long. Assume that you are borrowing money to pay for your car at a 10% interest rate. To figure out approximately how much interest you will pay on the loan over the course of the 5 years, use the following formula:

$$\text{Amount borrowed} \times .10 \text{ (interest rate)} \times 5 \text{ years (length of loan)}$$

Interest paid on Car A: \$9,160

Interest paid on Car B: \$3,660

Total Costs

18. To figure out the total cost of the car, add the price of the car + the initial cost + the interest costs.

Total costs for Car A: \$29,480

Total costs for Car B: \$12,980