

Notes: T2-29 Translating Real World

For each of the questions below, show all work and include an explanation.

You are considering driving an ice cream van during the summer vacation. You make a few inquiries and find that the van costs \$600 per week to rent. Each ice cream cone costs 50 cents to make and sells for \$1.50.

1. How many ice cream cones would you have to sell each week just to cover the cost of renting the van?

$\$600 @ \$1.00 = 600 \text{ cones.}$

2. In order to sell the ice cream cones, you have a choice of driving the van through neighborhoods or parking the van in a public area. Typical selling data is that one can sell an average of 25 ice cream cones per hour at each of your planned stops if driving through neighborhoods, while you can sell an average of 20 ice cream cones per hour if one parks the van in a public area.

- a. If you choose to drive the van, you would have to pay \$4.00 per gallon of gas and the van gets an average of 10 miles per gallon. If you drive an average of 250 miles per week, how many ice cream cones would you have to sell just to cover the cost of driving the van for a week (not including rental costs)?

$\frac{250 \text{ mi}}{\text{wk}} \cdot \frac{\text{gal}}{10 \text{ mi}} = 25 \text{ gal} \cdot \$4.00 = \$100$
100 cones.

- b. If you choose to park the van, you will have to pay a one-time seasonal \$10 permit fee and weekly space rental. If the space rental is \$40 per week, how many ice cream cones would you have to sell just to cover the cost of parking the van for a week (again, not including rental costs)?

$\$50 \quad 40 \quad 130$
 $1 \text{ wk} \quad 2 \text{ wk} \quad 3 \text{ wk.}$

3. How many hours will you have to work in order to break even for both plans?

Option A:

Option B:

Rental Cost: $\$600$	Rental Cost: $\$600$
Driving Cost: $\$100$	Parking Cost: $\$50$
Number of Hours: $\$700$ $\frac{700}{25 \text{ hr}} = 28 \text{ hrs}$ 700 cones. $+ 12 \text{ hr} \quad \$1.00 \text{ each cone}$ $40 \text{ hrs} @ 25 \text{ cones/hr.}$	Number of Hours: $\$650$ $\frac{650}{20} = 32.5 \text{ hrs}$ 650 cones $+ 7.5 \text{ hrs} \quad \1.00 cone $40 \text{ hrs} \quad 20 \text{ cones per hr}$

4. If you worked 40 hours a week, how much money would you make for each plan?

$12 \text{ hrs} \cdot 25 \text{ per hr} = 300 \text{ cones}$
Option A: $= \$300$

$7.5 \text{ hrs} \cdot 20 \text{ cones} = 150 \text{ cones}$
Option B: $= \$150$

5. Which is a better plan? Explain why.