

Name: _____ Date: _____

On the Road Again

Combination Computations

The Jones family is taking a trip to Yellowstone National park for their summer vacation. The family of six can fit in their car but it will be tight and the trip is long. The family car will also need a tune-up and an engine problem fixed prior to the trip. The other option is to rent a van. They will have more room but it may cost more money, limiting the amount they have to spend later. Using the information below, decide which method they should use to take their trip and how much each option will cost.

The **distance** from the **Jones' home to Yellowstone** is **2,116 miles *one way!***

(Ignore any travel they might do at the park.)

Length of the trip = 14 days

Gas costs \$1.50 per gallon.

Option 1: Family car

Average miles per gallon = 26.8

Cost of repairs = \$900.00

Option 2: "You rent it" agency van

Average miles per gallon = 18

Initial rental cost = \$129.00 per week

Cost per mile = \$0.10 per mile

Insurance = \$50 per week

Option 3: "Road rental" agency van

Average miles per gallon = 15

Initial rental cost = \$30 per day

Cost per mile = First 100 free;

\$0.05 each additional

Insurance = included in initial price

Thinking Cap

Research a trip of your own. Pick a location, find the distance and talk with travel agents. What is the cheapest travel method for your trip: Airlines, car, or train? Some packages include accommodations, others do not. Would this be an advantage?

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Using this Activity:

The teacher may want to do several examples of the separate parts of the problem prior to assigning the entire problem.

This activity provides a good opportunity to tie in geography and measurement, using maps to measure distances and plan a "cross-country" trip to visit all of the favorite locations of the students in the class.

Answers:

Option 1:
$$\text{Gas Costs} = \left\{ \frac{2,116}{26.8} \right\} \times 1.50 \approx \$236.87$$

(miles divided by miles per gallon = gallons needed x cost)

Repairs = \$900.00

Total Option 1 = \$1,136.87

Option 2:
$$\text{Gas Cost} = \left\{ \frac{2,116}{18} \right\} \times 1.50 \approx \$352.67$$

Initial Rental cost = $129.00 \times 2 = \$258.00$ (for two weeks)

Cost per mile = $2,116 \times 2 \times 0.10 = \423.20 (round trip)

Insurance = $50 \times 2 = \$100.00$

Total Option 2 = \$1,133.87

Option 3:
$$\text{Gas Cost} = \left\{ \frac{2,116}{15} \right\} \times 1.50 \approx \$423.20$$

Initial Rental cost = $30 \times 14 = \$420.00$

Cost per mile = $(2,116 + 2,016) \times 0.05 = \206.60 (First 100 free)

Insurance = \$0

Total Option 3 = \$1049.80

Objective: Use the calculator to solve problems involving distance and cost

NCTM Standards: Mathematics as Problem Solving; Number and number relationships; Computation and Estimation