



## Problem of the Week

### Problem B and Solution

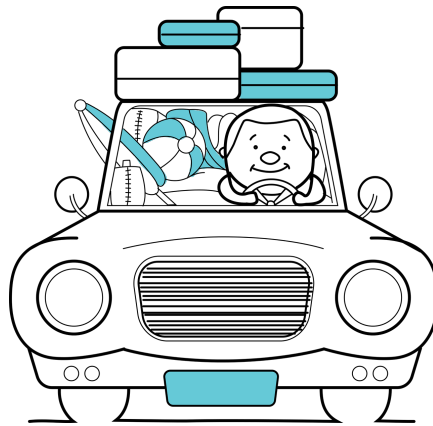
#### Road Trip

#### Problem

Mr. Sand is going on a trip to the beach. The total distance to the beach is 263 km. His car has a 60 L gas tank and can travel 640 000 m on that tank of gas.

Suppose that there are two service stations available to Mr. Sand. Station A charges \$40 for 25 L of gas, while Station B charges \$51 for 30 L of gas.

Determine the cost of the gas for his trip if he fills up at Station A versus the cost if he fills up at Station B. Which is the more economical?



#### Solution

If his vehicle has a 60 L gas tank and will travel 640 000 m or 640 km on one full tank, then he is using  $60 \div 640 = 0.09375$  L of gas per km.

Since the distance to the beach is 263 km, then this trip will take  $263 \times 0.09375 \approx 24.656$  L of gas.

For Station A:

The cost is \$40 for 25 L. Therefore, the gas will cost  $\frac{40}{25} = \$1.60$  per L.

Thus, the cost of the trip for Station A is  $24.656 \times \$1.60 = \$39.45$ .

For Station B:

The cost is \$51 for 30 L. Therefore, the gas will cost  $\frac{51}{30} = \$1.70$  per L.

Thus, the cost of the trip for Station B is  $24.656 \times \$1.70 = \$41.92$ .

Therefore, Station A is more economical than Station B.

NOTE: Since the gas at Station A costs less per L than at Station B, then using gas from Station A will always cost less than using gas from Station B.