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.