

Part 1: Use the equations below to answer the following questions:

$$\text{Distance} = \text{Rate} \cdot \text{Time}$$

$$\text{Rate} = \text{Distance} / \text{Time}$$

$$\text{Time} = \text{Distance} / \text{Rate}$$

1. The distance from Pittsburgh, PA to Washington DC is 250 miles. How fast (rate) does Bill need to drive if he wishes to arrive in 6 hours?
2. After arriving in Washington DC, Bill takes a train to Savannah, GA. The train traveled 575 miles at an average rate of 50 miles per hour. How long did the train trip take?
3. Bill realizes he needs to be back to Pittsburgh, PA as soon as possible and buys a plane ticket from Savannah, GA to Pittsburgh, PA. The plane travels at an average rate of 550 miles per hour and takes 1 hour 15 minutes.
 - a. How far is the trip from Savannah to Pittsburgh?
 - b. How many total miles did Bill travel during his 3 city trip?

Part 2: Use the equations below to answer the following questions:

These equations are based on the Mifflin - St Jeor equation. With this equation, the Basal Metabolic Rate (BMR) is calculated by using the formulas below. The BMR describes how many calories to eat in order for a person to maintain their current weight.

Men: $BMR = 10 \cdot \text{weight}(\text{in kg}) + 6.25 \cdot \text{height}(\text{in cm}) - 5 \cdot \text{age}(\text{in years}) + 5$

Women: $BMR = 10 \cdot \text{weight}(\text{in kg}) + 6.25 \cdot \text{height}(\text{in cm}) - 5 \cdot \text{age}(\text{in years}) - 161$

4. Find the BMR for a 39 year old man who weighs 86 kg and is 178 cm tall.
5. Find the BMR for a 16 year old woman who weighs 54 kg and is 157 cm tall.
6. Describe the effect that age has upon BMR. As age goes up BMR...

Additional conversion formulas: $\text{Kilograms} = 0.454 \cdot \text{pounds}$ $\text{Centimeters} = 2.54 \cdot \text{inches}$

7. Find the BMR for a 18 year old man who weighs 150 lbs and is 60 inches tall.
8. Find the BMR for a 18 year old woman who weighs 130 lbs and is 5'4" tall.
9. To lose a pound per week, the daily BMR amount should be reduced by 500. Find your own daily calorie intake level that would cause you to lose one pound per week.