**Solving equations**

Name: Div.: Date:

Write out and solve the following equations based on the diagrams provided:

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B) Solve the following equations using Algebra Tiles/Diagrams to show your work. Check your work using substitution evaluation:

A) Solve the following equations using opposite operations to show your work. Check your work using substitution evaluation:

Solve the following by writing an equation, or using a diagram:

1. If Haley has a third of the amount of money Madison has in her account, plus $50. Haley has $425 in her account. How much money does Madison have?
2. Kevin wants to use $750 for a new water heater. If he uses a quarter of his current savings he will have $30 more than he needs. How much money does Kevin have saved?
3. Mr. Howe wants to buy a new television. He tells his wife it will only take a fifth of their current savings to buy the one he wants. However, his wife doesn’t want to spend more than $500 on a television, which is $125 more than Mr. Howe would spend with their current savings. How much money does Mr. Howe have saved?
4. The amount of sleep someone requires can be found by taking 12hours and subtracting one quarter the persons age.
   1. If Brian needs 10hours of sleep how old is he?
   2. Natasha is 13 years old. How many hours of sleep a night should she be getting?
5. Your weight on mars is one third your weight on earth, plus 3 pounds. How much would someone who weight 175lbs weigh on Mars?
6. Use the information below to calculate your BMR (information taken from http://www.bodybuilding.com/fun/calorie-know-how-get-equation-right-to-get-results.htm)

**To determine your basal metabolic rate (BMR), aka how many calories your body burns at rest, use the following formula:**

**FORMULA FOR BMR:**

W = weight in kilograms (weight (lbs)/2.2) =weight in kg  
H = height in centimeters (inches x 2.54) =height in cm  
A = age in years  
  
Men: BMR=66.47+ (13.75 x W) + (5.0 x H) - (6.75 x A)  
Women: BMR=665.09 + (9.56 x W) + (1.84 x H) - (4.67 x A)

Your BMR:

1. Calculate how many calories you need to consume to maintain your body weight, based on your level of activity (equations below).

Once you calculate your BMR factor in activity to account for calories burned during exercise.

BMR x 1.2 for low intensity activities and leisure activities (primarily sedentary)

BMR x 1.375 for light exercise (leisurely walking for 30-50 minutes 3-4 days/week, golfing, house chores)

BMR x 1.55 for moderate exercise 3-5 days per week (60-70% MHR for 30-60 minutes/session)

BMR x 1.725 for active individuals (exercising 6-7 days/week at moderate to high intensity (70-85% MHR) for 45-60 minutes/session)

BMR x 1.9 for the extremely active individuals (engaged in heavy/intense exercise like heavy manual labor, heavy lifting, endurance athletes, and competitive team sports athletes 6-7 days/week for 90 + minutes/session)