Exercise and Calories

EXAMPLE According to the National Institutes of Health, the average number of
calories spent per hour by a 150-pound person who rides a bicycle 6 miles
per hour is 240 calories. The calories spent in a particular activity vary in
proportion to one's body weight. For example, a 100-pound person burns
$\frac{1}{3}$ fewer calories, and a 200-pound person, burns $\frac{1}{3}$ more calories.

Find the average number of calories burned by a 100-pound person and a
200-pound person who ride bikes at 6 mph for one hour. Round your
answer to the nearest calorie.

100-pound person
Think: $\frac{1}{3}$ fewer is about 33% fewer. Multiply by 100% minus 33%, or 67%
240 calories per hour $\times$ 67% = 240 $\times$ 0.67 = 160.8 $\approx$ 161 cals./hr

200-pound person
Think: $\frac{1}{3}$ more is about 33% more. Multiply by 100% plus 33%, or 133%
240 calories per hour $\times$ 133% = 240 $\times$ 1.33 = 319.2 $\approx$ 319 cals./hr

A 100-pound person burns an average of 161 calories per hour bicycling at 6 mph.
A 200-pound person burns an average of 319 calories per hour bicycling at 6 mph.

Directions Find the average number of calories a 100-pound person and a
200-pound person burn while engaged in the following activities. Round your
answer to the nearest calorie.

	Activity	Calories burned by 150-lb person	Calories burned by 100-lb person	Calories burned by 200-lb person
1.	Bicycling 6 mph	240 cals./hr	161	319
2.	Bicycling 12 mph	410 cals./hr		
3.	Cross-country skiing	700 cals./hr		
4.	Jogging 5 $\frac{1}{2}$ mph	740 cals./hr		
5.	Jogging 7 mph	920 cals./hr		
6.	Jumping rope	750 cals./hr		
7.	Running in place	650 cals./hr		
8.	Running 10 mph	1280 cals./hr		

Source: Exercise and Your Heart, A Guide to Physical Activity
http://www.nih.gov/health/exercise/3.htm

Consumer Mathematics

Fat Grams and Calories

EXAMPLE   Oscar eats some french fries. In a cup of fries, there are 180 calories and 6 grams of fat. Each gram of fat supplies 9 calories. What percent of the calories in the french fries are from fat?

Step 1 Find the number of calories from fat.

$6g \times 9 = 54$ calories from fat

Step 2 Write the fat proportion.

$$\frac{\text{Fat calories}}{\text{Total calories}} = \frac{\text{percent fat}}{100}$$

$$\frac{54}{180} = \frac{\text{percent fat}}{100}$$

Step 3 Simplfy the ratios

$$\frac{54}{180} = \frac{\text{percent fat}}{100}$$

$$\frac{9}{30} = \frac{\text{percent fat}}{100}$$

Step 4 Solve the proportion

$9 \times 100 \div 30 = 30\%$

The fat calories are 30% of the french fries.

Directions Find what percent the fact calories are of the total calories in each food. Round to the nearest whole percent.

	Food	Total Calories per Serving	Grams of Fat per Serving	Percent of Fat per Serving
1.	Corn, 1 ear boiled	117	0.9 g	
2.	Corn fritter	132	7.5 g	
3.	Potato, 1 baked	220	0.2 g	
4.	Potato, $\frac{1}{2}$ c. hash browns	119	10.8 g	
5.	Whole milk, 8 fl. oz.	157	8.9 g	
6.	Skim milk, 8 fl.oz.	86	0.4 g	
7.	Tuna fish, 3 oz., in oil	169	7 g	
8.	Tuna fish, 3 oz., in water	97	1.5 g	
9.	Mixed nuts, 1 oz.	168	14.5 g	
10.	Angel food cake, 1 slice	130	0 g	
11.	Chocolate cake, 1 slice	190	5 g	
12.	Orange	62	0.2 g	

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