CALORIES IN, CALORIES OUT

How many calories does a body burn?

name

date

Act One: Dos Mil

1 Diane, Esteban, and Gladys are all different ages. They're different heights, weigh different amounts, and do different types of exercise. However, they all consume the same amount each day: 2,000 calories. Of the three, who do you expect will burn the most calories in a day? Explain.

Diane, 40 years 5'4", 135 pounds Jogs 1 hour/day	Esteban, 31 years 6'1", 220 pounds Walks 1.5 hour/day	Gladys, 63 years 5'8", 165 pounds Golfs 2 hours/day

2 When you exercise, the number of **calories burned in one minute** depends in part on how much you weigh. For instance, jogging for one minute burns 0.063 calories *for every pound of body weight*.

Calculate how many calories Diane, Esteban, and Gladys will each burn in one minute of their chosen exercise. Based on this, how many calories will they burn in total each day from exercise?

Jogging: 0.063 cal/lb	Walking: 0.019 cal/lb	Golf: 0.033 cal/lb

3 In addition to exercise, the body also burns calories from breathing, digestion, etc. The **resting metabolic rate** (**RMR**) is the number of calories a body burns at rest. Calculate the RMRs for Diane, Esteban, and Gladys.

Then, including the calories they burn from exercise, will they burn all 2000 calories by the end of the day?

Resting Metabolic Rate	Male:	$4.5w + 15.9h - 5a + 5$	*where w = weight (pounds), h = height (inches), a = age (years)*
	Female:	$4.5w + 15.9h - 5a - 161$	

Act Two: Dos Meals

4 Scientists estimate that 3500 calories is equivalent to 1 pound of body weight. If Diane, Esteban, and Gladys each follows the same routine as before, how much weight can they expect to gain/lose over the next year?



5 Instead of gaining or losing weight, imagine Diane and Esteban want to (more or less) maintain their weight, but still exercise the same amount. Choose one of them, and come up with two menus that would help them do this.

 220 cal	 60 cal	 396 cal	 1090 cal
 200 cal	 740 cal	 630 cal	 1055 cal
 72 cal	 160 cal	 500 cal	 280 cal
 140 cal	 390 cal	 0 cal	 120 cal

6 Imagine someone is currently maintaining his weight (calories in = calories out), but who wants to lose 30 pounds over the next year. By how many calories will he need to change each day, and how might he accomplish this?