Formulas for Distance, Rate, and Time

Distance $= d$	Rate $= r$	Time $= t$
$d = rt$	$r = \dfrac{d}{t}$	$t = \dfrac{d}{r}$
Distance equals rate times time.	Rate equals distance divided by time.	Time equals distance divided by rate.

Math.and**Y☉U**.com

You can access a distance, rate, and time calculator at *Math.andYou.com*.

EXAMPLE 5   **Using the Distance Formula**

Each morning, you run 7.5 miles in 45 minutes. You weigh 155 pounds. How many calories do you burn running each morning?

Calories Burned During 1 Hour of Activity

	Weight		
Activity	**130 lb**	**155 lb**	**190 lb**
Bicycling, 12 mph	472	563	690
Billiards	148	176	216
Fishing from boat	148	176	216
Golfing	236	281	345
Running, 10 mph	944	1126	1380
Running, 8 mph	797	950	1165
Swimming laps	590	704	863
Volleyball at beach	472	563	690

SOLUTION

You are given the time and the distance. Your rate is given by

$$r = \frac{d}{t}$$

$$= \frac{7.5 \text{ miles}}{0.75 \text{ hour}} \qquad \text{Write 45 minutes as 0.75 hour.}$$

$$= 10\, \frac{\text{miles}}{\text{hour}}.$$

Because 45 minutes is $\dfrac{3}{4}$ of an hour, you burn $\dfrac{3}{4}$ of 1126 calories.

Calories burned $= 0.75(1126) = 844.5$

So, you burn about 850 calories each morning.

According to the Centers for Disease Control and Prevention, people who exercise regularly lower their risk of heart disease, stroke, and colon cancer.

✓ **Checkpoint**   Help at *Math*.and**Y☉U**.com

For lunch, you eat a third-pound hamburger with 590 calories, a medium cola with 210 calories, and a large order of French fries with 510 calories. How long do you have to run at 10 miles per hour to burn the calories you eat at lunch?