# Group Work 1, Section 3.9
Find the Error

It is a beautiful Spring evening. You and your wild-eyed, hungry looking roomates are sitting around, reading your Calculus books. You arrive at the following:

> **EXAMPLE 2** A ladder 10 ft long rests against a vertical wall. If the bottom of the ladder slides away from the wall at a rate of 1 ft/s, how fast is the top of the ladder sliding down the wall when the bottom of the ladder is 6 ft from the wall?

Your enthused roommates don't read the rest of the example, preferring to do the problem on their own. This is how they proceed:
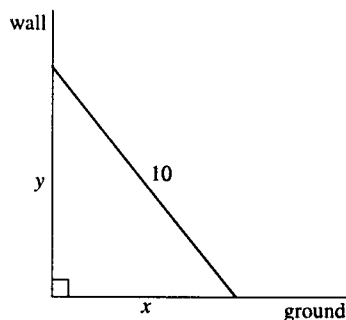
"We want to find dy/dt. So we set up

$$x^2 + y^2 = 100$$

Now, we want dy/dt when $dx/dt = 1$ and $x = 6$. Substituting $x = 6$ gives us

$$36 + y^2 = 100 \text{ or } y^2 = 64$$

Now we take derivatives:

$$2y\frac{dy}{dt} = 0$$

giving $dy/dt = 0$."

The problem is, of course, that this answer doesn't make any sense.

1. Why does their answer not make any sense?

2. What error did they make? How could they correct it?