
Common Calculus Mistakes

Example: Power Rule

The Goal

Find

$$\frac{d}{dr}(200 - \pi r)(2r)$$

The Mistake

Find the mistake:

$$\frac{d}{dr}(200 - \pi r)(2r) = \frac{d}{dr}(400r - 2\pi r^2) = r - 4\pi r$$

Need a hint? Look carefully at the red part:

$$\frac{d}{dr}(200 - \pi r)(2r) = \frac{d}{dr}(400r - 2\pi r^2) = r - 4\pi r$$

The Correction

$$\frac{d}{dr}(200 - \pi r)(2r) = \frac{d}{dr}(400r - 2\pi r^2) = 400 - 4\pi r$$

An Explanation

The derivative of $400r$ (with respect to r) is 400 , not r .

(Multiplying out before taking the derivative was a good idea, since it avoided using the product rule, which would have required more work for this derivative.)