

Skills

Simplify the following and put your answer in **standard form**

$$(4a^2 - 5a^3 + 6a) - (8a^3 - 2a^4 - 7) - (5a^2 - 2)$$

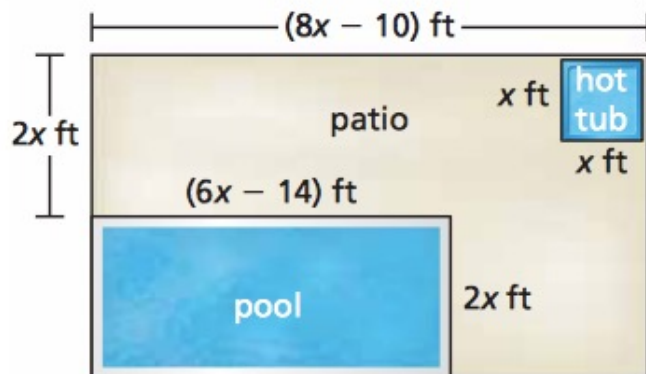
$$(3b + 4)(3b - 5)$$

$$(4m - 2n)(3m + 4n)$$

$$(-4x + 5y)(5x^2 - 5xy + 2y^2)$$

Application

PROBLEM SOLVING A hotel installs a new swimming pool and a new hot tub.



- Write the polynomial in standard form that represents the area of the patio.
- The patio will cost \$10 per square foot. Determine the cost of the patio when $x = 9$.

Error Analysis

A hamster Bob Skwecker wants to open a hot dog stand outside the Golden One Center. He has the following components of his business figured out:

- **ALL HOTDOGS COST ONE HAMSTER BUCK!**
- The **cost** of the all the stuff he needs to make hotdogs is given by:

$$2(x^2 + 2x + 100), \text{ where } x \text{ is money in hamster bucks}$$

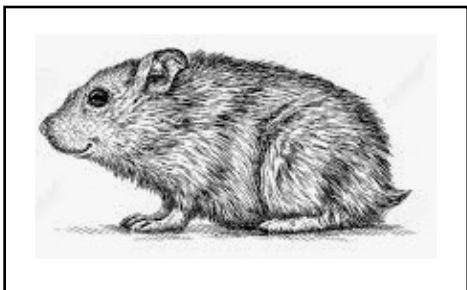
- The **revenue** he makes from selling the hotdogs is given by:

$$3x^2 + 5x, \text{ where } x \text{ is money in hamster bucks}$$

That said, Bob believes he can sell 40 hotdogs and make a nice profit - but he wants to be sure. That's why he hired you to be sure make sure he's correct. Bob wants you to build a profit function for him and use it to make your decision from that. Good luck and don't get fired!

The area of the rectangle below can be expressed as $A(x) = 64x^3 - 27$. That said, find the polynomials that represent the LENGTH and WIDTH of the rectangular hamster painting. After you find those, build a perimeter equation in terms of x . Put all solutions in standard form.

Length



Width

Length: _____ Width: _____ Perimeter: _____