

Closing Tues: HW 14.2 (part 2)
Closing Thur: HW 14.3/4 (last HW)
Final: Sat, March 10, 5:00-7:50pm,
Final Room is based on quiz section
For BC/BD, AC/AD: PAA A102
For AA/AB, BB: PAA A118
For BA: PAA A110

Entry Task:

The current hourly rate for labor is \$20 and material is \$55 per pound.
How will a \$1 per hour raise for labor affect the cost to produce 1 item?

14.4 More Applications

1. Cost Breakdown (HW 14.3/1-2)

Suppose the cost to produce ONE item is given by:

$$C(x, y) = 3x^2 + 4y^2 + 5xy + 10,$$

where

x = cost for 1 hour of labor, and

y = cost for 1 pound of materials.

2. Marginal Productivity (14.3/5-6)

Suppose that the number of crates of a particular fruit produced is

$$z = \frac{9xy - 0.0002x^2 - 5y}{0.03x + 4y}$$

where

x = number of hours of labor, and

y = number of acres of the crop.

Find the marginal productivity for hours of labor when $x = 100$ and $y = 200$. Interpret your answer

3. Revenue/Cost

Assume you manufacture and sell two products, A and B .

Let

x = thousands of units of A , and

y = thousands of units of B .

You know from past years that your cost (in thousand dollars) is given by

$$C(x, y) = 2x^2 - 2xy + y^2 - 9x - 10y + 11$$

And you know:

- Product A sells for \$5.00/item, and
- Product B sells for \$8.00/item.

What is the maximum profit?

