

> **cost:=17000+3.78*(x+y);**

$$\text{cost} := 17000 + 3.78 x + 3.78 y$$

> **revenue:=(85.25-0.17*x)*x + (97.95-0.25*y)*y;**

$$\text{revenue} := (85.25 - .17 x) x + (97.95 - .25 y) y$$

> **profit:=revenue-cost;**

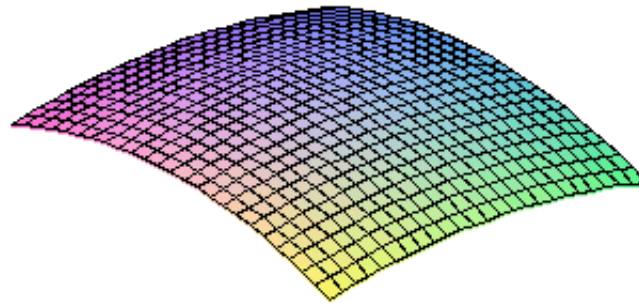
$$\text{profit} := (85.25 - .17 x) x + (97.95 - .25 y) y - 17000 - 3.78 x - 3.78 y$$

> **profit:=expand(profit);**

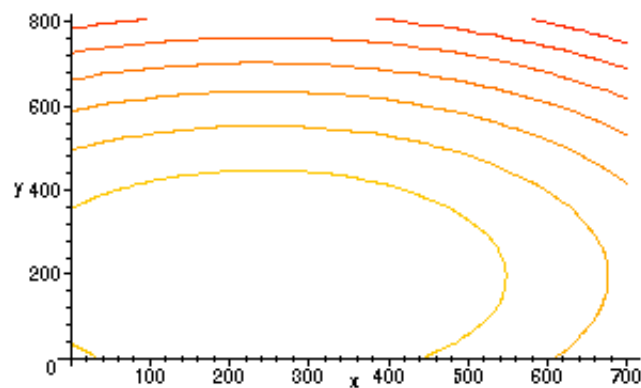
$$\text{profit} := 81.47 x - .17 x^2 + 94.17 y - .25 y^2 - 17000$$

> **with(plots):**

> **plot3d(profit,x=0..700,y=0..800);**



> **contourplot(profit,x=0..700,y=0..800);**



> **dpx:=diff(profit,x);**

$$\text{dpx} := 81.47 - .34 x$$

> **dpdy:=diff(profit,y);**

$$dpdy := 94.17 - .50 y$$

> **solve({dpdx=0,dpdy=0},{x,y});**

$$\{y = 188.3400000, x = 239.6176471\}$$

> **subs(% ,profit);**

$$1628.81375$$

>