

Cevaplar - 5

1. a) $f(12,8) = 150$ 1.b) $V(2,4) = 32\pi$ 1. c) $B(100,0.06,3) = 118$

1. d) $G(1,2) = -4,$

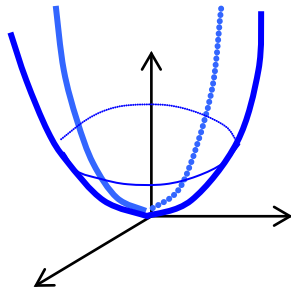
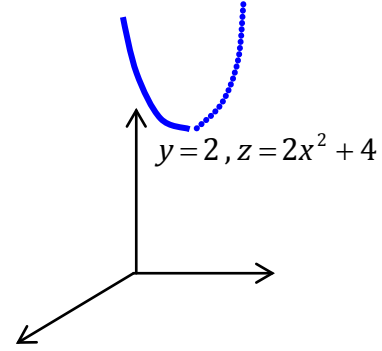
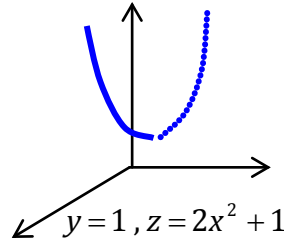
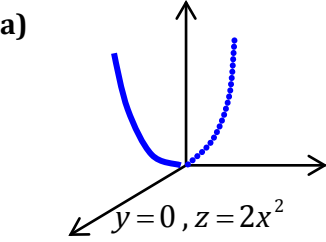
$$G(x+h, y+k) = -5x^2 + 6xy - 4y^2 + 2x + 3 - 10xh - 5h^2 + 6xk + 6yh + 6hk - 8yk - 4k^2 + 2h.$$

1. e) $\frac{f(x+h, y, z) - f(x, y, z)}{h} = 2y^2z^3, \quad \frac{f(x, y, z+t) - f(x, y, z)}{t} = 2xy^2((z+t)^2 + (z+t)z + z^2).$

2. $A(x, y, z) = xy + 2xz + 3yz, \quad A(10,12,6) = 456.$

3. $G(x,y) = 460x + 260y - 9x^2 + 3xy - 8y^2, \quad K(x,y) = -400 + 380x + 200y - 9x^2 + 3xy - 4y^2,$
 $G(20,15) = 8600, \quad K(20,15) = 5700.$

4. a)



6. a) $\frac{\partial z}{\partial x} = 15x^2 - 3y^4, \quad \frac{\partial z}{\partial y} = -12xy^3, \quad \frac{\partial^2 z}{\partial x \partial y} = -12y^3 = \frac{\partial^2 z}{\partial y \partial x},$
 $\frac{\partial^2 z}{\partial y^2} = -36xy^2, \quad f_x(1,2) = -33, \quad f_y(1,2) = -96.$

6. c) $\frac{\partial z}{\partial x} = 2e^{2x+y^2}, \quad \frac{\partial z}{\partial y} = 2ye^{2x+y^2}, \quad \frac{\partial^2 z}{\partial x \partial y} = 4ye^{2x+y^2}, \quad \frac{\partial^2 z}{\partial y^2} = 2e^{2x+y^2} + 4y^2e^{2x+y^2}, \quad f_y(1,2) = 4e^6.$

6. d) $\frac{\partial z}{\partial x} = \frac{1}{y} - \frac{y}{x^2}, \quad \frac{\partial z}{\partial y} = \frac{-x}{y^2} + \frac{1}{x}, \quad \frac{\partial^2 z}{\partial x \partial y} = -\frac{x^2 + y^2}{x^2 y^2} = \frac{\partial^2 z}{\partial y \partial x}, \quad \frac{\partial^2 z}{\partial y^2} = \frac{2x}{y^3}, \quad f_x(1,2) = \frac{-3}{2}, \quad f_y(1,2) = \frac{3}{4}.$

8. $x = 2, y = 4.$

10. a) Marjinal iş gücü verimliliği: $f_x(300,250) = 6.5(300)^{-0.35}(250)^{0.35} \approx 6.098.$

Marjinal sermaye verimliliği: $f_y(300,250) = 3.5(300)^{0.65}(250)^{-0.65} \approx 3.94.$

10. b) İşgücü artırılarak.

12. a) $w_x = yz - 3x^2$ 12. b) $w_y = xz + 2yz$ 12. c) $w_z = xy + y^2$ 12. e) $w_{zy} = x + 2y$