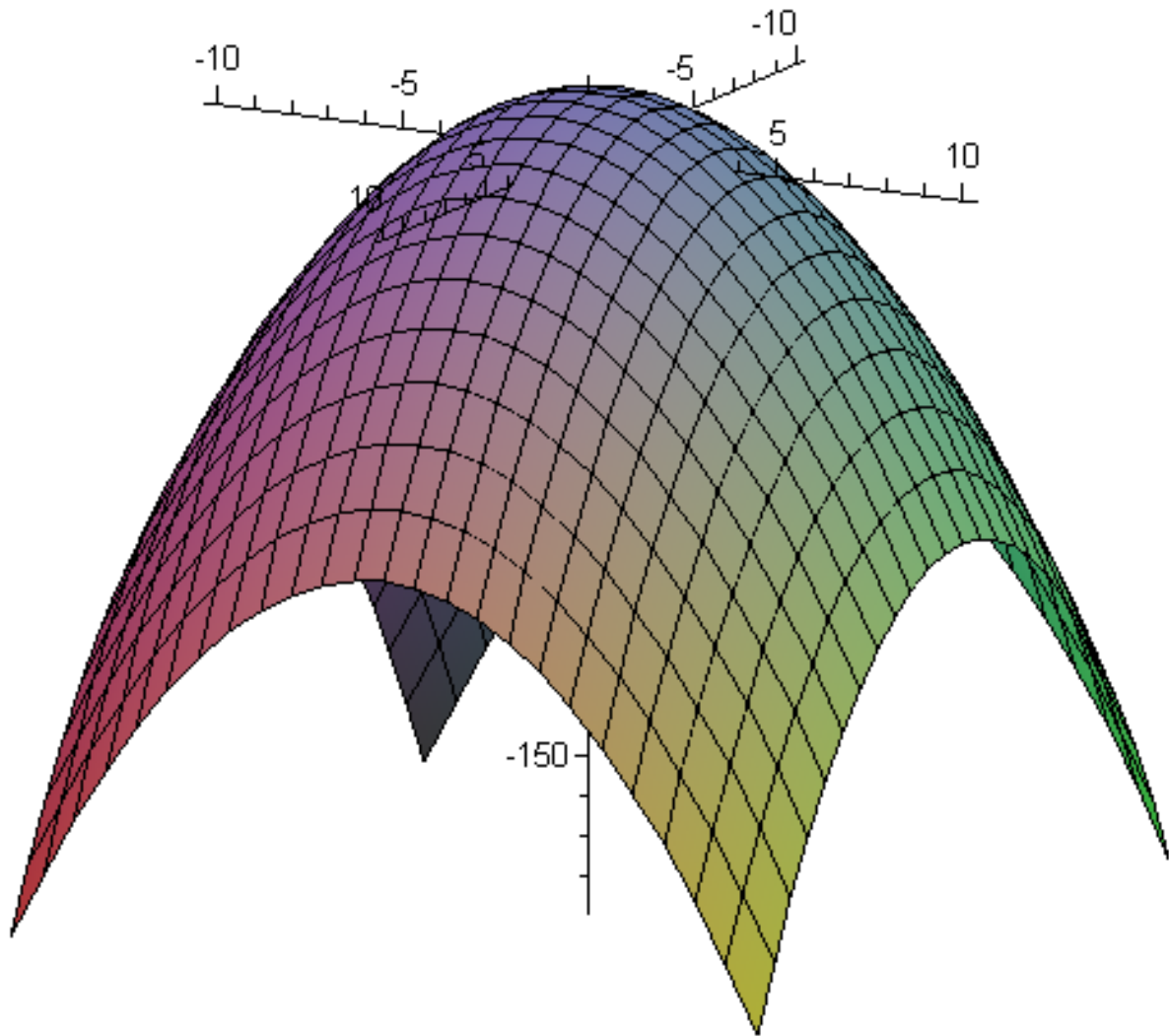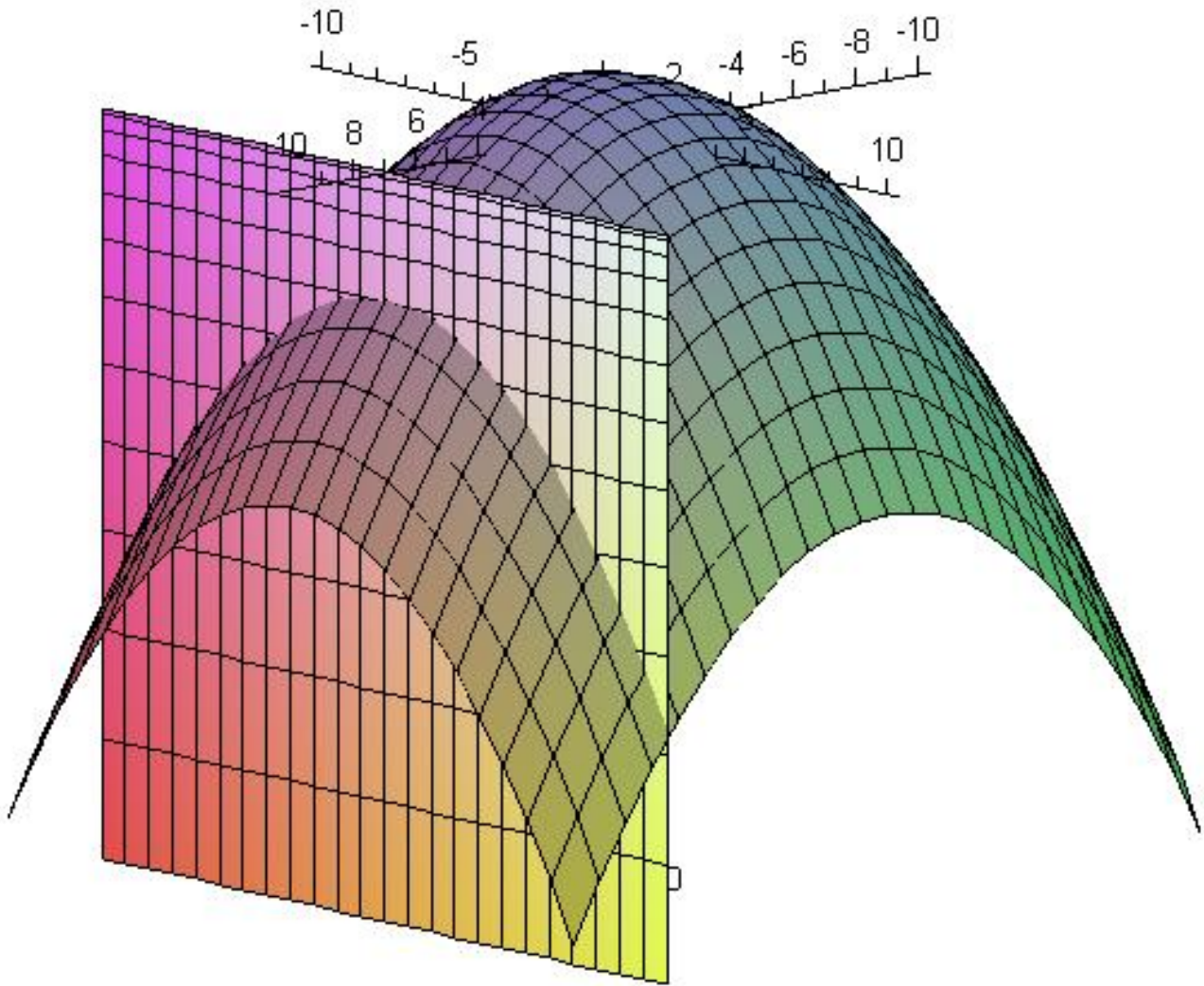# The surface
# $z = f(x,y) = 15 - x^2 - y^2$

The surface
$$z = f(x,y) = 15 - x^2 - y^2$$
and the plane
$$x = 7$$

# The surface
$$z = f(x,y) = 15 - x^2 - y^2$$
## and the tangent in the y-direction at
$$(x,y,z) = (7,4,-50)$$
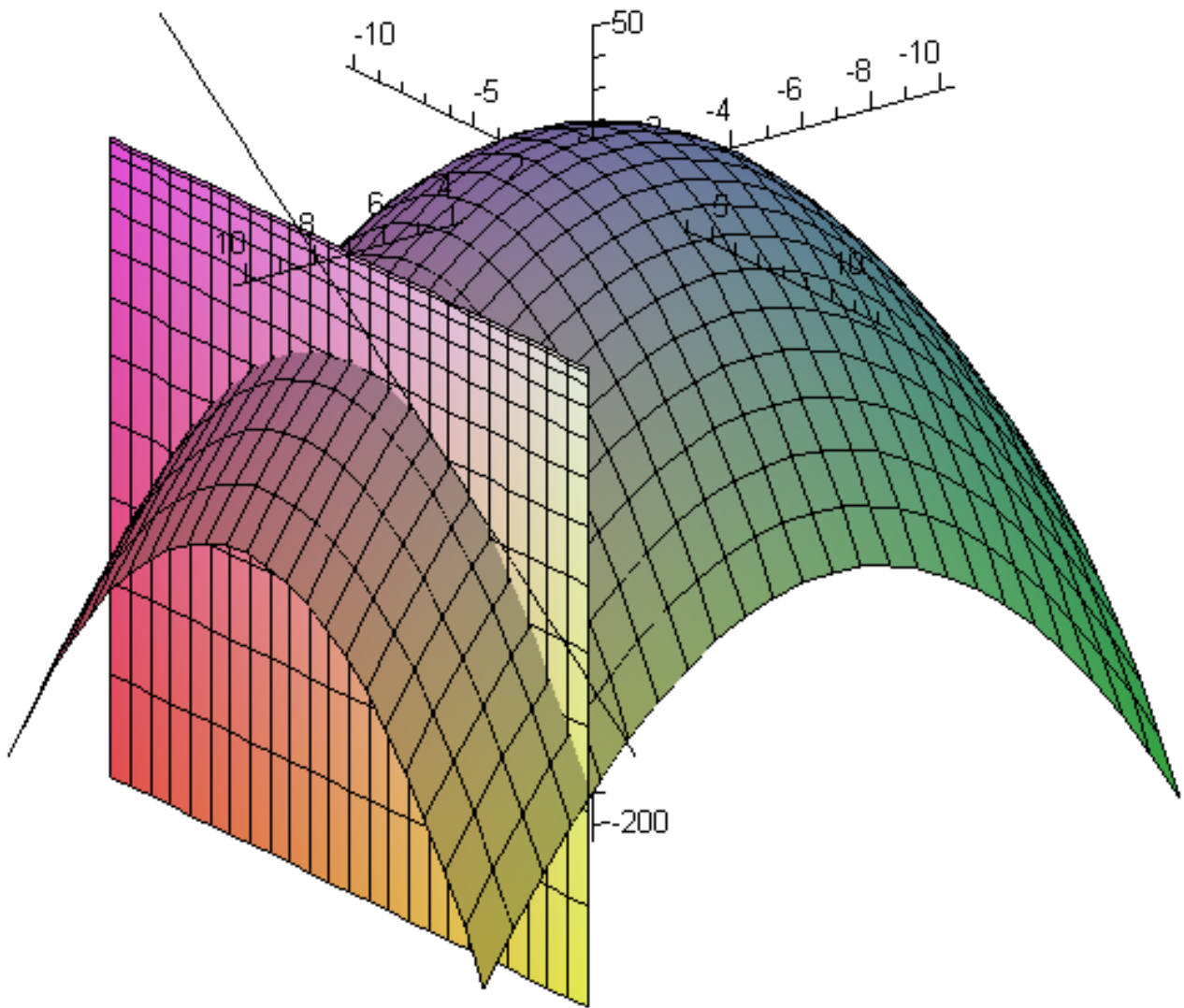
The surface
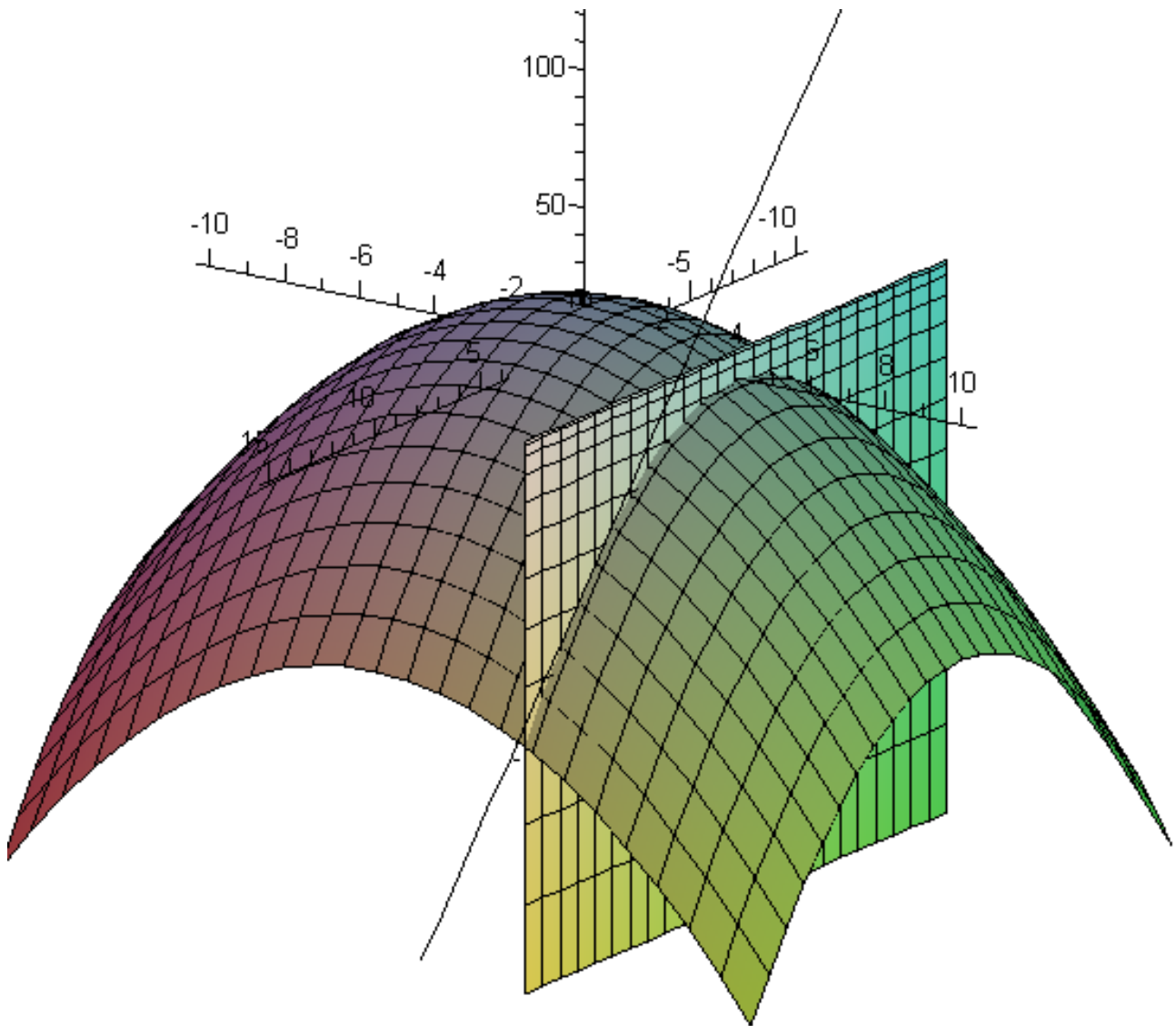$$z = f(x,y) = 15 - x^2 - y^2$$
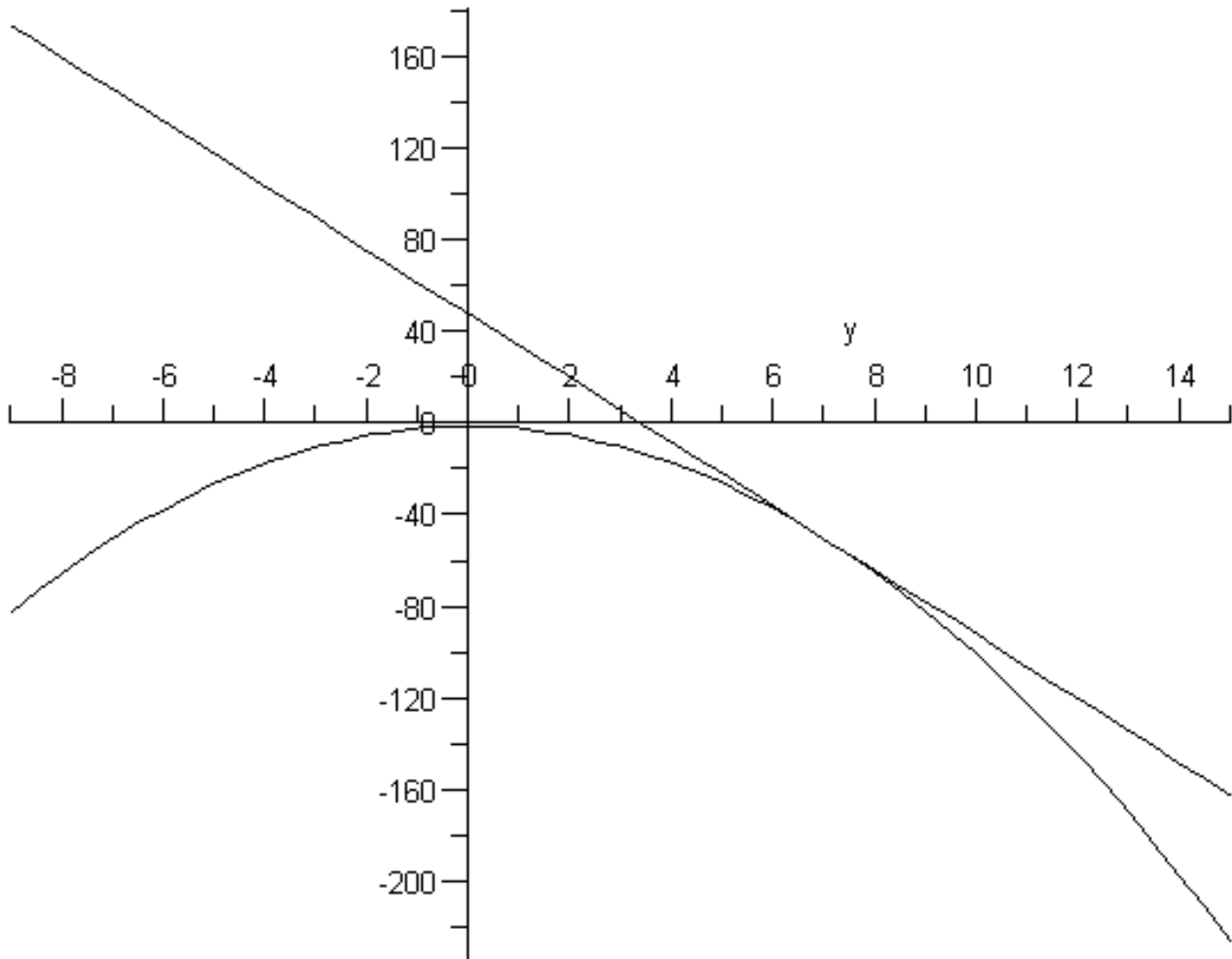and the tangent in the x-direction at
$$(x,y,z) = (7,4,-50)$$

# The tangent line at (x,y,z) = (7,4,-50) in the y-direction drawn on the plane in 2D.
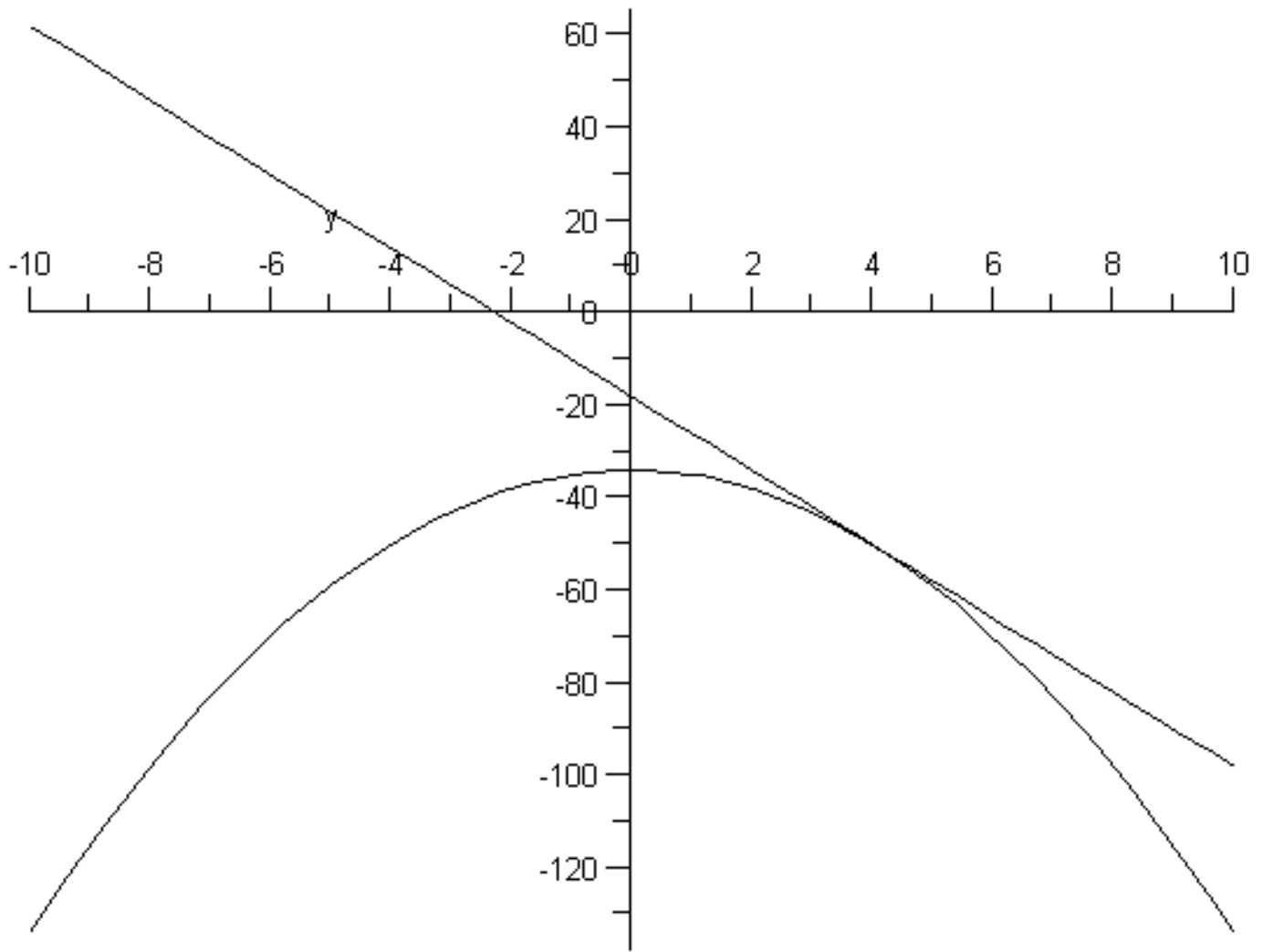


$$f_y(7,4) = -8$$

The tangent line at $(x,y,z) = (7,4,-50)$
in the x-direction drawn on the plane in 2D.



$$f_x(7,4) = -14$$