

Section 15.1
Thomas Calculus
11th Ed.

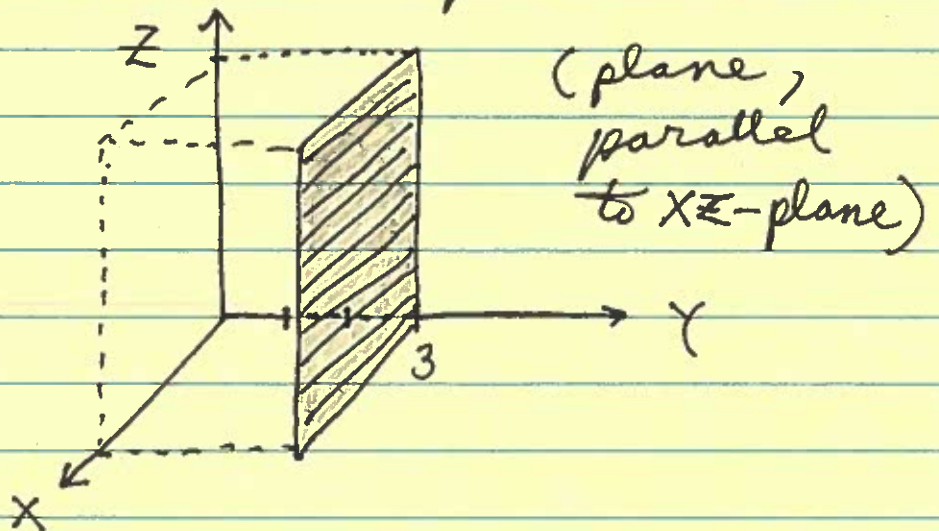
Surfaces in 3D-Space (Review)

Recall from Math 21C that you can use the following "tools" to sketch a surface in 3D-Space:

1. Intercepts
2. Traces
3. Level Curves

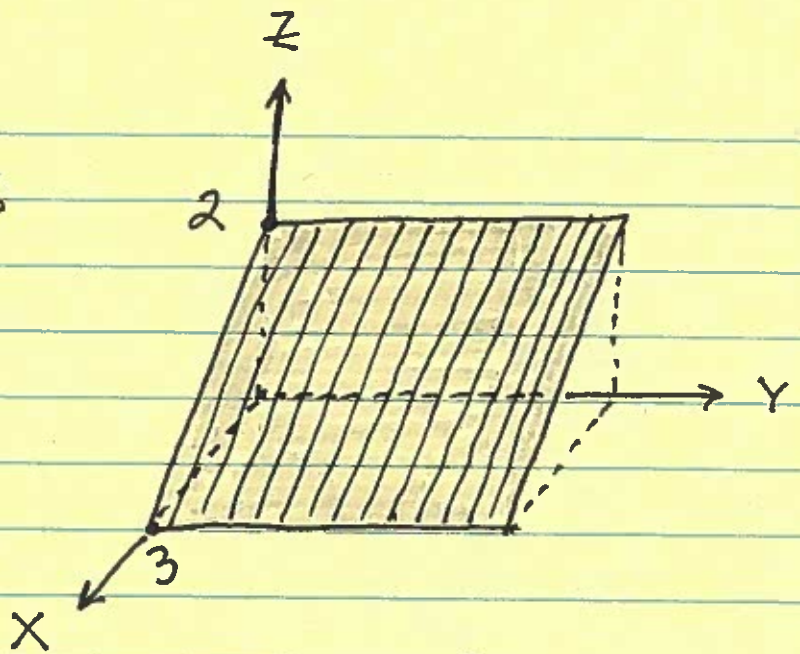
Example: Sketch the following surfaces in 3D-Space.

1.) $y = 3$



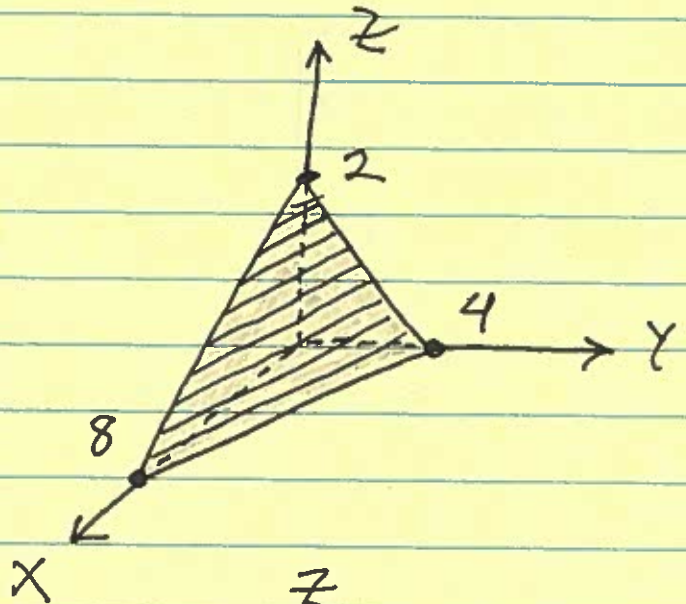
2.) $2x + 3z = 6$

(plane parallel to y-axis)



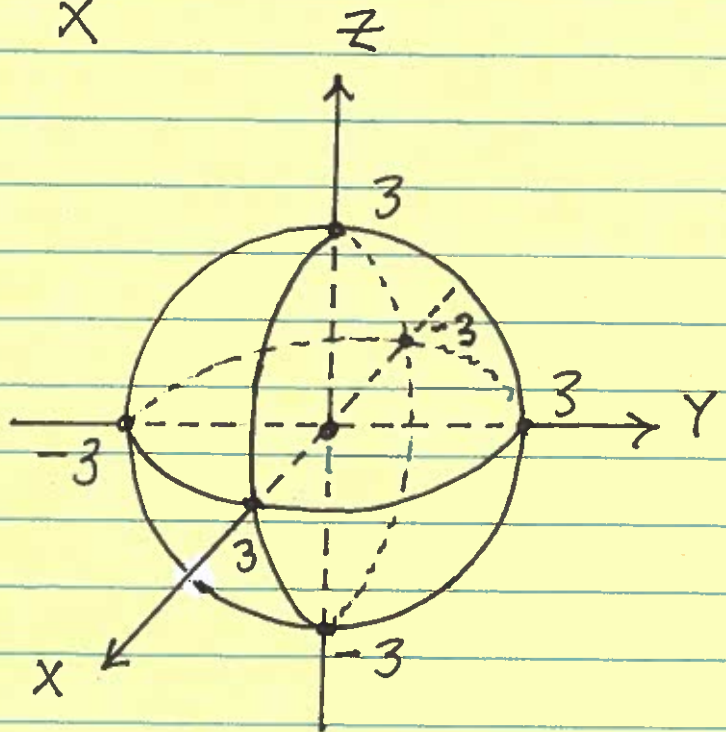
3.) $x + 2y + 4z = 8$

(tilted plane)



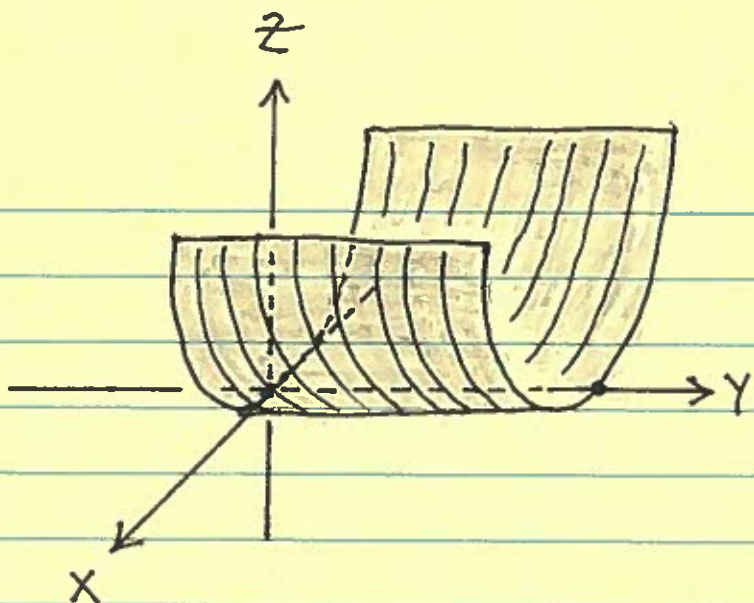
4.) $x^2 + y^2 + z^2 = 9$

(sphere of radius 3 centered at $(0, 0, 0)$)



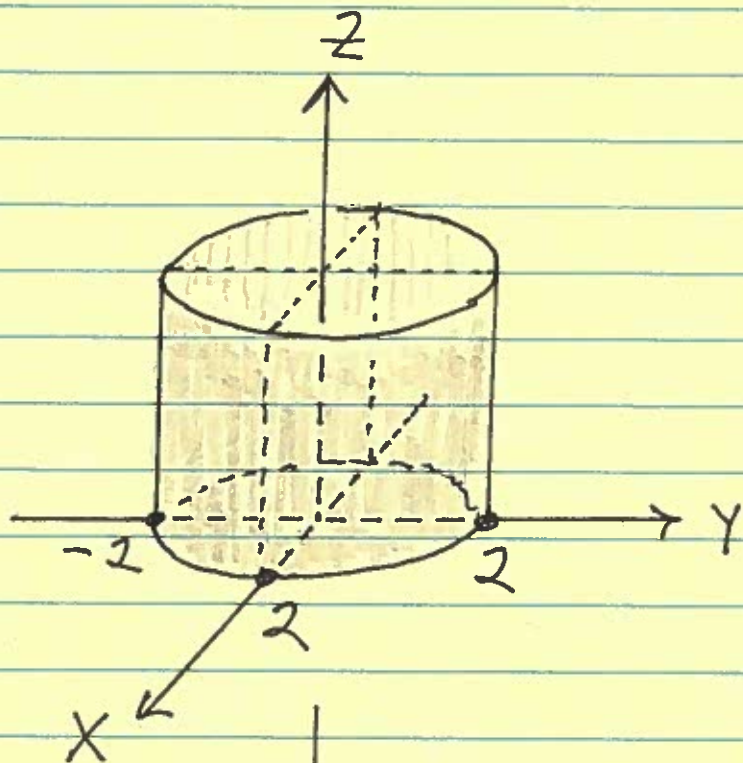
5.) $z = x^2$

(parabolic cylinder,
parallel to the
y-axis)



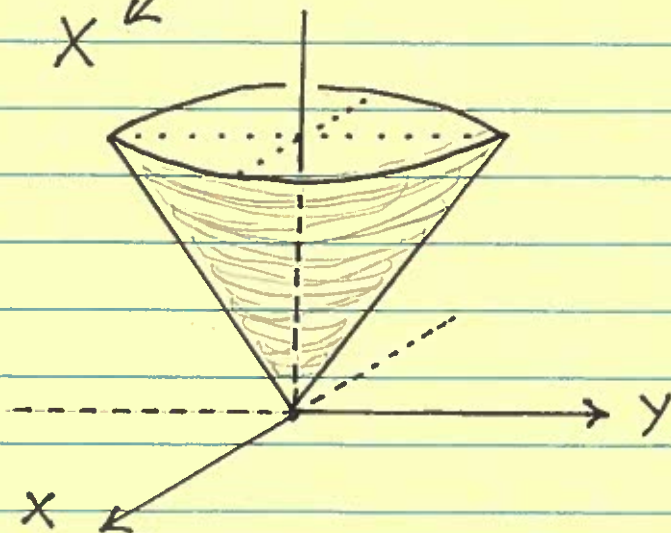
6.) $x^2 + y^2 = 4$

(circular cylinder,
parallel to the
z-axis
of radius 2)

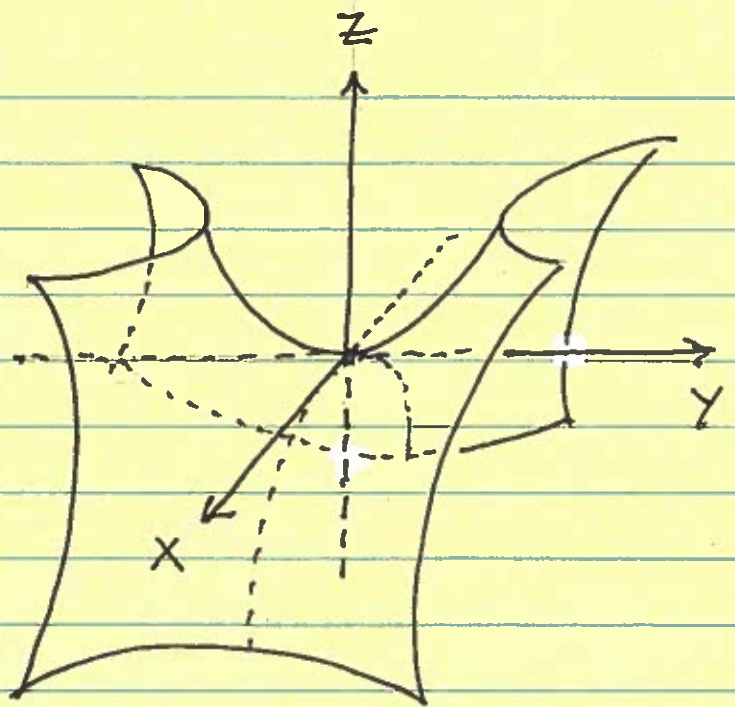


7.) $z = \sqrt{x^2 + y^2}$

(cone)



8.) $Z = y^2 - x^2$
(hyperbolic
paraboloid
or saddle)



9.) $x^2 + y^2 = 4 + z^2$
(hyperboloid
of one sheet,
parallel to
the z-axis)

