

MAT 241
Calculus 3 SANTILLI
Chapter 12
Surface of Revolution Problems

Find an equation for the surface of revolution generated by the curve in the specified coordinate plane about the given axis.

EQUATION OF CURVE	COORDINATE PLANE	AXIS OF REVOLUTION
1.) $z^2 = 4y$	yz- plane	y- axis , ans: $x^2 + z^2 = 4y$
2.) $z = 2y$	yz- plane	y- axis
3.) $z = 2y$	yz- plane	z- axis , ans: $4x^2 + 4y^2 = z^2$
4.) $2z = \sqrt{4 - x^2}$	xz- plane	x- axis
5.) $xy = 2$	xy- plane	x- axis , ans: $y^2 + z^2 = \frac{4}{x^2}$
6.) $z = \ln y$	yz- plane	z- axis

Find an equation for the generating curve and the axis of revolution given the equation of its surface of revolution.

7.) $x^2 + y^2 - 2z = 0$, **ans:** $y = \sqrt{2z}$, z axis

8.) $x^2 + z^2 = \sin^2 y$