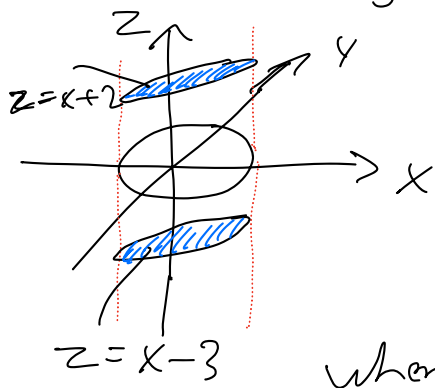


DW 6, 7, 8 have extra problems now
will make DW 6B = "6 bonus" with
extra practice on cylindrical & spherical

DW 8: Q1 & 2b & c, just reviewed Q12

1b: $F = (yz, x, 3y^2)$, S surface of solid bound by
 $x^2 + y^2 = 4$, $z = x - 3$, $z = x + 2$ with negative orientation,

find $\iint_S F \cdot dS$



With divergence theorem, add 2 minus
sign because S negatively oriented,

$$\text{so } \iint_S F \cdot dS = - \iiint_E \operatorname{div} F \, dV$$

where E is the solid that S encloses

$$\nabla \cdot F = (yz)_x + (x)_y + (3y^2)_z = 0 + 0 + 0 = 0,$$

$$\text{so } \iint_S F \cdot dS = 0$$

We can also do this manually for practice: