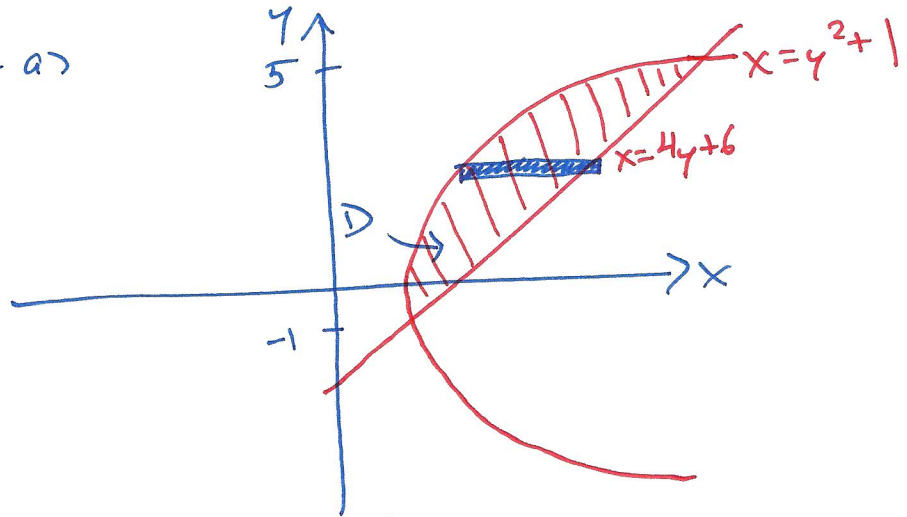


11. a)



These curves intersect when

$$y^2 + 1 = 4y + 6$$

$$y^2 - 4y - 5 = 0$$

$$(y - 5)(y + 1) = 0$$

$$y = 5 \quad y = -1$$

$$A = \int_{-1}^5 \int_{y^2+1}^{4y+6} dx dy$$

$$= \int_{-1}^5 [x]_{x=y^2+1}^{x=4y+6} dy$$

$$= \int_{-1}^5 [(4y+6) - (y^2+1)] dy$$

$$= \int_{-1}^5 (4y + 5 - y^2) dy$$

$$= [2y^2 + 5y - \frac{1}{3}y^3]_{-1}^5$$

$$= (50 + 25 - \frac{125}{3}) - (2 - 5 + \frac{1}{3})$$

$$= 78 - \frac{126}{3}$$

$$= 78 - 42$$

$$= 36$$