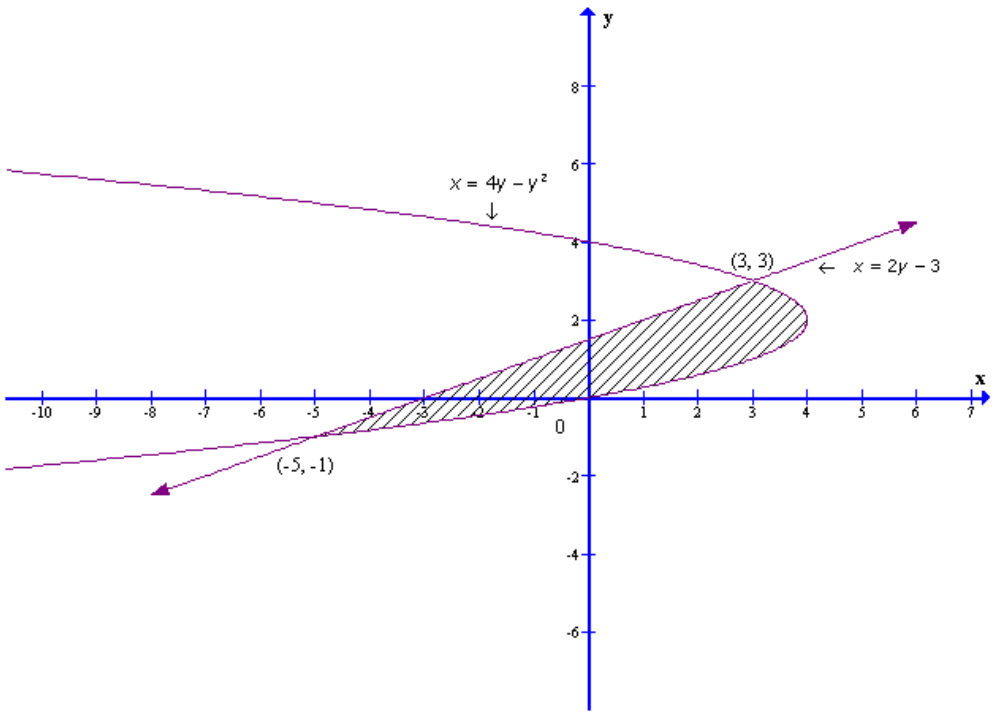
RD Sharma Solutions Class 12 Maths Chapter 21 Ex 21.4

Areas of Bounded Regions Ex-21-4 Q1



Area of the bounded region

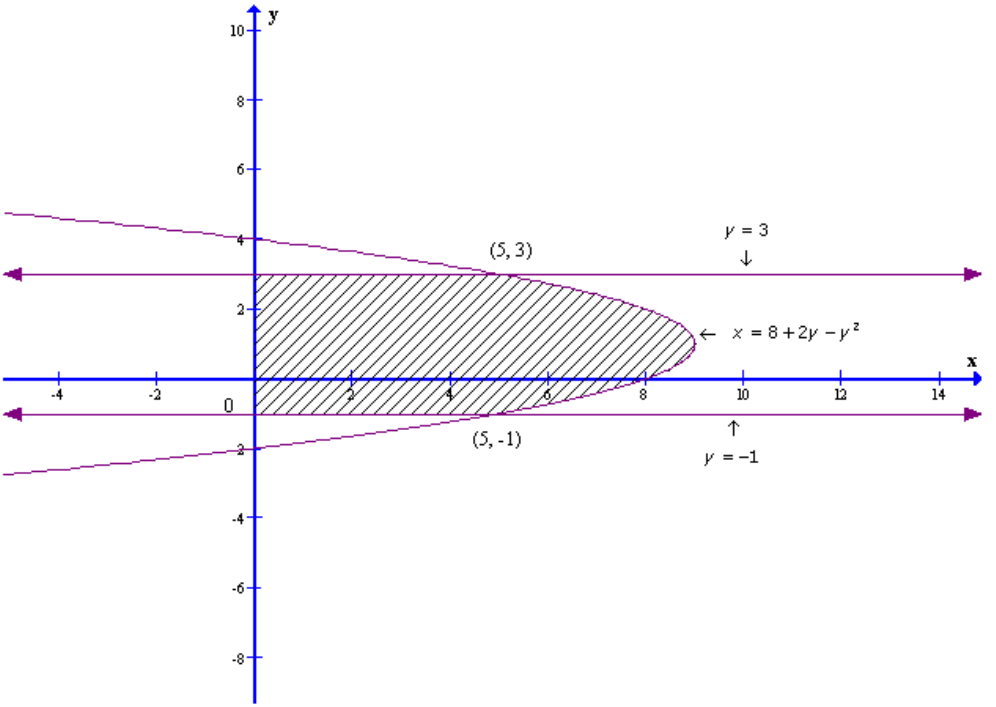
$$= \int_{-1}^{3} \left(4y - y^2 - 2y + 3\right) dy$$

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

$$= 9 - 9 + 9 - 1 - \frac{1}{3} + 3 - \frac{(16a)^3}{48a}$$

$$= \frac{32}{3} sq.\ units$$

Areas of Bounded Regions Ex-21-4 Q2



Area of the bounded region

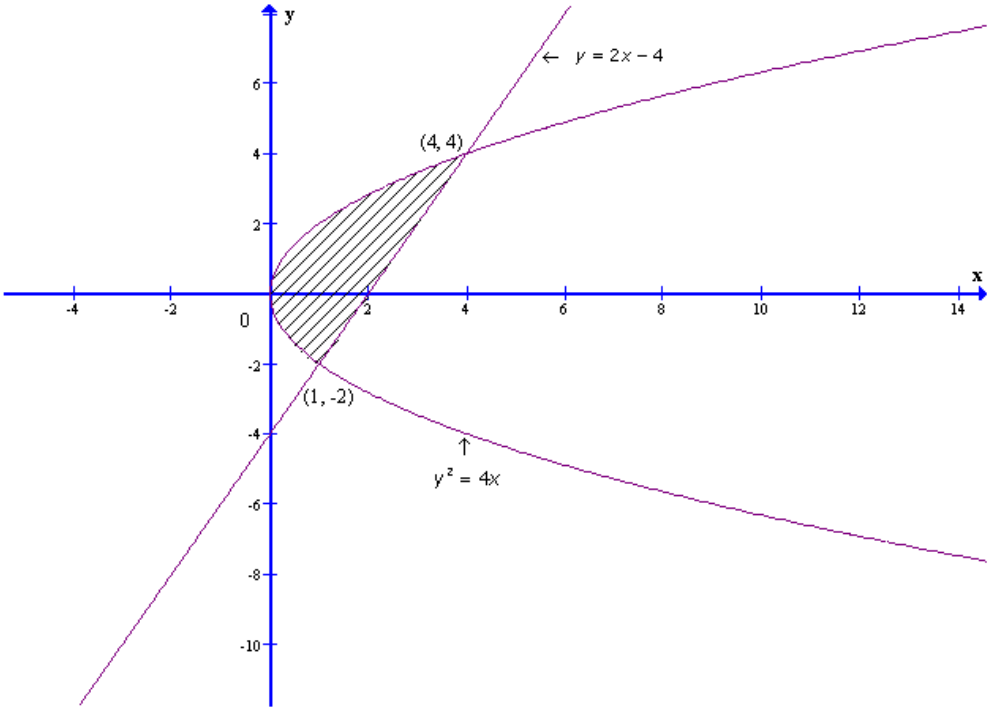
$$= \int_{-1}^{3} (5-0)\ dy + \int_{-1}^{3} 8+2y-y^2-5\ dy$$

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

$$= 15+5+9+9-\frac{27}{3}+3-1-\frac{1}{3}$$

$$= \frac{92}{3} sq.\ units$$

Areas of Bounded Regions Ex-21-4 Q3



Area of the bounded region

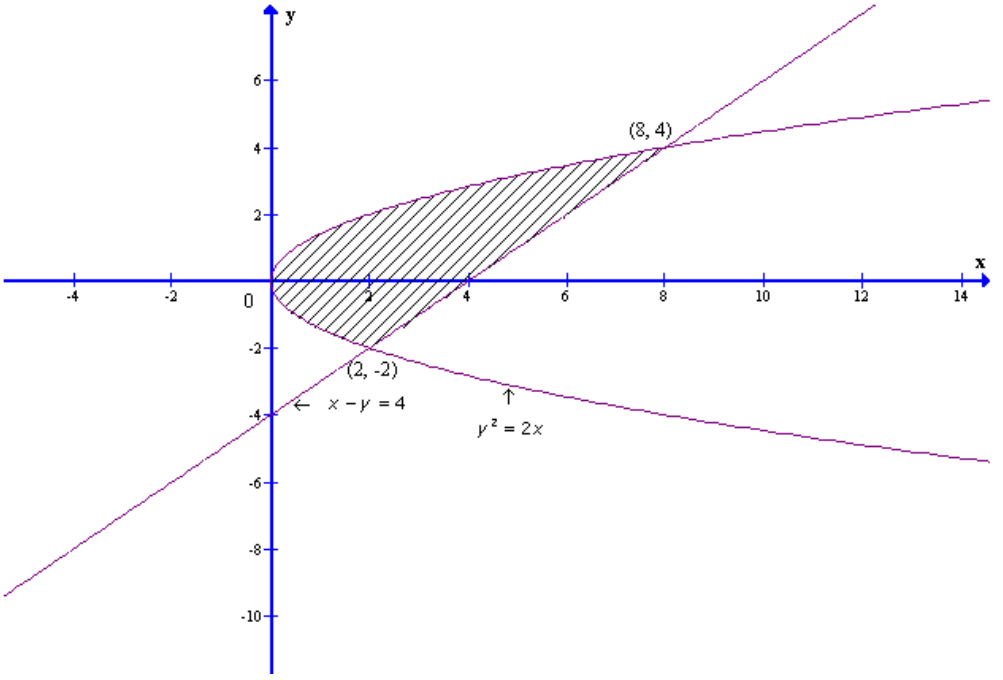
$$= \int_{-2}^{4} \left(\frac{y+4}{2} - \frac{y^2}{4} \right) dy$$

$$= \left[\frac{y^2}{4} + 2y - \frac{y^3}{12} \right]_{-2}^{4}$$

$$= 4 + 8 - \frac{16}{3} - 1 + 4 - \frac{2}{3}$$

$$= 9 \text{ sq. units}$$

Areas of Bounded Regions Ex-21-4 Q4



Area of the bounded region

$$= \int_{-2}^{4} \left(y + 4 - \frac{y^2}{2} \right) \, dy$$

$$= \left[\frac{y^2}{2} + 4y - \frac{y^3}{6} \right]_{-2}^{4}$$

$$= 8 + 16 - \frac{32}{3} - 2 + 8 - \frac{4}{3}$$

$$= 18 \text{ sq. units}$$