

Answers to Worksheet 15 - Areas with Functions of y

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

$$2) \int_0^9 2\sqrt{x} dx$$

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

$$= \frac{125}{6} \approx 20.833$$

$$4) \int_0^4 \left(2\sqrt{y} - \frac{y^2}{4} \right) dy$$

$$= \frac{16}{3} \approx 5.333$$

$$\int_{-3}^3 y^2 dy$$

$$5) \int_{-3}^{-1} (-y^2 - 6y - 4 - (-y^2 + 2)) dy +$$

$$\int_{-1}^0 (-y^2 + 2 - (-y^2 - 6y - 4)) dy$$

$$= 15$$

$$6) \int_0^4 (2\sqrt{y} - \sqrt{y}) dy$$

$$= \frac{16}{3} \approx 5.333$$

$$7) \int_{-1}^3 (-2 - (y^2 - 2y - 5)) dy$$

$$= \frac{32}{3} \approx 10.667$$

$$8) \int_1^4 \left(2 - \frac{2}{y^2} \right) dy$$

$$= \frac{9}{2} = 4.5$$