Answers to Area Between Curves Practice

1) $\displaystyle\int_0^4 \left(2\sqrt{x} + \sqrt{x}\right) dx$

$= 16$

2) $\displaystyle\int_0^8 \left(\sqrt[3]{x^2} - \frac{1}{2}x\right) dx$

$= \dfrac{16}{5} = 3.2$

3) $\displaystyle\int_{-6}^{-2} \left(-y^2 - 8y - 15 - \left(\frac{y^2}{2} + 4y + 3\right)\right) dy$

$= 16$

4) $\displaystyle\int_{-2}^0 \left(-\frac{y}{2} - \left(-\frac{y^3}{2} + y^2 + \frac{7y}{2}\right)\right) dy +$

$\displaystyle\int_0^4 \left(-\frac{y^3}{2} + y^2 + \frac{7y}{2} + \frac{y}{2}\right) dy$

$= \dfrac{74}{3} \approx 24.667$

5) $\displaystyle\int_2^4 \left(-\frac{x}{2} + 2 - \left(\frac{x^2}{2} - 2x\right)\right) dx +$

$\displaystyle\int_4^6 \left(\frac{x^2}{2} - 2x - \left(-\frac{x}{2} + 2\right)\right) dx$

$= 10$

6) $\displaystyle\int_0^4 \left(2\sqrt{x} - \frac{x^2}{4}\right) dx$

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

7) $\displaystyle\int_{-5}^{-2} \left(\frac{y^2}{2} - 2\right) dy +$

$\displaystyle\int_{-2}^0 \left(-4 - \left(\frac{y^2}{2} - 6\right)\right) dy$

$= \dfrac{97}{6} \approx 16.167$

8) $\displaystyle\int_{-2}^0 \left(y^3 - 6y - y^2\right) dy +$

$\displaystyle\int_0^3 \left(y^2 - \left(y^3 - 6y\right)\right) dy$

$= \dfrac{253}{12} \approx 21.083$