

597 Nr. 3

$$d) f(x) = -x ; F(x) = -\frac{x^2}{2} + C \Rightarrow F(1) = 100 = -\frac{1^2}{2} + C \Rightarrow 100,5 = C$$
$$\Rightarrow \underline{\underline{F(x) = -\frac{1}{2}x^2 + 100,5}}$$

$$e) f(x) = -10 ; F(x) = -10x + C \Rightarrow F(1) = 100 = -10 \cdot 1 + C \Rightarrow C = 110$$
$$\Rightarrow \underline{\underline{F(x) = -10x + 110}}$$

597 Nr. 4

$$a) \int_0^4 x^2 dx = \left[\frac{x^3}{3} \right]_0^4 = \frac{4^3}{3} - \frac{0^3}{3} = \underline{\underline{\frac{64}{3}}}$$

$$b) \int_2^4 x^2 dx = \left[\frac{x^3}{3} \right]_2^4 = \frac{4^3}{3} - \frac{2^3}{3} = \underline{\underline{\frac{56}{3}}}$$

$$c) \int_{-1}^5 2x dx = \left[\frac{2}{2} x^2 \right]_{-1}^5 = \left[x^2 \right]_{-1}^5 = 5^2 - (-1)^2 = \underline{\underline{24}}$$

$$d) \int_{10}^{11} \frac{1}{2} x dx = \left[\frac{1}{2} \cdot \frac{x^2}{2} \right]_{10}^{11} = \left[\frac{1}{4} \cdot x^2 \right]_{10}^{11} = \frac{1}{4} \cdot 11^2 - \frac{1}{4} \cdot 10^2 = \underline{\underline{\frac{21}{4}}}$$

$$e) \int_{10}^{20} 5 dx = \left[5x \right]_{10}^{20} = 5 \cdot 20 - 5 \cdot 10 = \underline{\underline{50}}$$

$$f) \int_0^1 x^3 dx = \left[\frac{x^4}{4} \right]_0^1 = \frac{1^4}{4} - \frac{0^4}{4} = \underline{\underline{\frac{1}{4}}}$$

$$g) \int_0^3 \frac{1}{2} x^2 dx = \left[\frac{1}{2} \cdot \frac{x^3}{3} \right]_0^3 = \frac{3^3}{6} - \frac{3^0}{6} = \underline{\underline{\frac{27}{6}}} = \underline{\underline{\frac{9}{2}}}$$

$$h) \int_{-2}^0 \frac{1}{3} x^3 dx = \left[\frac{1}{3} \cdot \frac{x^4}{4} \right]_{-2}^0 = \frac{0^4}{12} - \frac{(-2)^4}{12} = -\frac{16}{12} = \underline{\underline{-\frac{4}{3}}}$$

$$i) \int_{-2}^{-1} \frac{1}{8} x^4 dx = \left[\frac{1}{8} \cdot \frac{x^5}{5} \right]_{-2}^{-1} = \frac{1}{40} \cdot (-1)^5 - \frac{1}{40} \cdot (-2)^5 = -\frac{1}{40} + \frac{32}{40} = \underline{\underline{\frac{31}{40}}}$$