Aufgabe 1:

a) $\int_1^3 x^4\,dx=$
$[\frac{x^5}{5}]_1^3 = (\frac{243}{5}) - (\frac{1}{5}) = 48.4$

b) $\int_{-3}^4 x^6\,dx=$
$[\frac{x^7}{7}]_{-3}^4 = (\frac{16384}{7}) - (-\frac{2187}{7}) = 2653$

c) $\int_{-3}^1 x^3\,dx=$
$[\frac{x^4}{4}]_{-3}^1 = (\frac{1}{4}) - (\frac{81}{4}) = -20$

Aufgabe 2:

a) $\int_{-1}^2 -x^6\,dx=$
$[-\frac{x^7}{7}]_{-1}^2 = (-\frac{128}{7}) - (\frac{1}{7}) = -18.429$

b) $\int_{-2}^1 x\,dx=$
$[\frac{x^2}{2}]_{-2}^1 = (\frac{1}{2}) - (2) = -1.5$

c) $\int_{-2}^4 -2x^2\,dx=$
$[-\frac{2x^3}{3}]_{-2}^4 = (-\frac{128}{3}) - (\frac{16}{3}) = -48$

Aufgabe 3:

a) $\int_{-4}^4 -3x\,dx=$
$[-\frac{3x^2}{2}]_{-4}^4 = (-24) - (-24) = 0$

b) $\int_{-4}^{-2} x^6 + 2x^3\,dx=$
$[\frac{x^7}{7} + \frac{x^4}{2}]_{-4}^{-2} =$
$(-\frac{72}{7}) - (-\frac{15488}{7}) = 2202.3$

c) $\int_0^3 5x^6 - 4x^5\,dx=$
$[\frac{5x^7}{7} - \frac{2x^6}{3}]_0^3 = (\frac{7533}{7}) - (0) = 1076.1$

Aufgabe 4:

a) $\int_{-4}^{-4} 5x^5 + x^4 + x^2\,dx=$
$[\frac{5x^6}{6} + \frac{x^5}{5} + \frac{x^3}{3}]_{-4}^{-4} =$
$(\frac{15936}{5}) - (\frac{15936}{5}) = 0$

b) $\int_2^4 -3x^5 - x^4 - 4x^3\,dx=$
$[-\frac{x^6}{2} - \frac{x^5}{5} - x^4]_2^4 =$
$(-\frac{12544}{5}) - (-\frac{272}{5}) = -2454.4$

c) $\int_0^3 4x^6 + x^4\,dx=$
$[\frac{4x^7}{7} + \frac{x^5}{5}]_0^3 = (\frac{45441}{35}) - (0) = 1298.3$

Aufgabe 5:

a) $\int_{-3}^1 \frac{1}{x^2}\,dx=$
$[-\frac{1}{x}]_{-3}^1 = (-1) - (\frac{1}{3}) = -1.3333$

b) $\int_{-1}^0 x\,dx=$
$[\frac{x^2}{2}]_{-1}^0 = (0) - (\frac{1}{2}) = -0.5$

c) $\int_{-3}^{-2} x^4\,dx=$
$[\frac{x^5}{5}]_{-3}^{-2} = (-\frac{32}{5}) - (-\frac{243}{5}) = 42.2$

Aufgabe 6:

a) $\int_{-3}^2 2x^5 - 3x + \frac{1}{x^4}\,dx=$
$[\frac{x^6}{3} - \frac{3x^2}{2} - \frac{1}{3x^3}]_{-3}^2 =$
$(\frac{367}{24}) - (\frac{37181}{162}) = -214.22$

b) $\int_{-1}^{-1} -\frac{3}{x^5}\,dx=$
$[\frac{3}{4x^4}]_{-1}^{-1} = (\frac{3}{4}) - (\frac{3}{4}) = 0$

c) $\int_0^1 5x^2\,dx=$
$[\frac{5x^3}{3}]_0^1 = (\frac{5}{3}) - (0) = 1.6667$