Aufgabe 1:

a) $\int_{-2}^{5} x^5\,dx =$
$[\frac{x^6}{6}]_{-2}^{5} = (\frac{15625}{6}) - (\frac{32}{3}) =$
2593.5

b) $\int_{2}^{3} x^6\,dx =$
$[\frac{x^7}{7}]_{2}^{3} = (\frac{2187}{7}) - (\frac{128}{7}) = 294.14$

c) $\int_{-3}^{1} x^6\,dx =$
$[\frac{x^7}{7}]_{-3}^{1} = (\frac{1}{7}) - (-\frac{2187}{7}) =$
312.57

Aufgabe 2:

a) $\int_{-2}^{5} -4x^5\,dx =$
$[-\frac{2x^6}{3}]_{-2}^{5} =$
$(-\frac{31250}{3}) - (-\frac{128}{3}) = -10374$

b) $\int_{-4}^{1} 4x\,dx =$
$[2x^2]_{-4}^{1} = (2) - (32) = -30$

c) $\int_{2}^{3} 2x^2\,dx =$
$[\frac{2x^3}{3}]_{2}^{3} = (18) - (\frac{16}{3}) = 12.667$

Aufgabe 3:

a) $\int_{-4}^{4} -3x^4 - 4x^3\,dx =$
$[-\frac{3x^5}{5} - x^4]_{-4}^{4} =$
$(-\frac{4352}{5}) - (\frac{1792}{5}) = -1228.8$

b) $\int_{1}^{2} 2x^5 + x^4\,dx =$
$[\frac{x^6}{3} + \frac{x^5}{5}]_{1}^{2} = (\frac{416}{15}) - (\frac{8}{15}) = 27.2$

c) $\int_{-4}^{3} x^7 + x\,dx =$
$[\frac{x^8}{8} + \frac{x^2}{2}]_{-4}^{3} =$
$(\frac{6597}{8}) - (8200) = -7375.4$

Aufgabe 4:

a) $\int_{-1}^{4} -4x^7 + 2x^4\,dx =$
$[-\frac{x^8}{2} + \frac{2x^5}{5}]_{-1}^{4} =$
$(-\frac{161792}{5}) - (-\frac{9}{10}) = -32358.0$

b) $\int_{-2}^{-2} -3x^7 + x^5 + 2x^4\,dx =$
$[-\frac{3x^8}{8} + \frac{x^6}{6} + \frac{2x^5}{5}]_{-2}^{-2} =$
$(-\frac{1472}{15}) - (-\frac{1472}{15}) = 0$

c) $\int_{-2}^{2} 9x^5\,dx =$
$[\frac{3x^6}{2}]_{-2}^{2} = (96) - (96) = 0$

Aufgabe 5:

a) $x^2 - x + 3 = 0$
Keine Lösung

b) $x^2 + 5x - 3 = 0$
$x_1 = 0.54,\ x_2 = -5.5$

c) $x^2 + x + 2 = 0$
Keine Lösung

Aufgabe 6:

a) $-2x^2 - 2x - 2 = 0$
Keine Lösung

b) $-4x^2 = 0$
$x_1 = 0$

c) $4x^2 + 2x - 3 = 0$
$x_1 = 0.65,\ x_2 = -1.2$

Aufgabe 7:

a) $-2x^2 - 3x = 0$
$x_1 = -1.5,\ x_2 = 0$

b) $5x^2 - 4x = 0$
$x_1 = 0,\ x_2 = 0.8$

c) $3x^2 + 5x = 0$
$x_1 = -1.7,\ x_2 = 0$