1) $f(x) = x^2 - x - 12$; $g(x) = 2x - 2$

2) $\int_{-1}^{2} (x^3 + 4x^2 + x - 6)\, dx$

3) $f(x) = -3x^2 - 6x + 45$ Fläche im 1. Quadranten

4) $f(x) = 24x^3 - 24x^2 - 6 \cdot (4x - 4)$ Fläche mit der x-Achse

5) $f(x) = x^3 - 6x^2 + 8x + 5$

Fläche der Landesfarbe im 1. Quadranten
a) mittels Integral
b) ohne Integral

1) $\frac{343}{6}$

2) $f(x) = x^3 + 4x^2 + x - 6 = (x-1)(x+2)(x+3)$

$$\int_{-1}^{2} f(x)\,dx = \int_{-1}^{1} f(x)\,dx + \int_{1}^{2} f(x)\,dx$$

$$F(x) = \tfrac{1}{4}x^4 + \tfrac{4}{3}x^3 + \tfrac{1}{2}x^2 - 6x$$

$$F(-1) = \tfrac{1}{4} - \tfrac{4}{3} + \tfrac{1}{2} + 6 = \frac{3-16+6+72}{12} = \frac{65}{12}$$

$$F(1) = \tfrac{1}{4} + \tfrac{4}{3} + \tfrac{1}{2} - 6 = \frac{3+16+6-72}{12} = -\frac{47}{12}$$

$$F(2) = \tfrac{16}{4} + \tfrac{32}{3} + \tfrac{4}{2} - 12 = \frac{48+128+24-144}{12} = \frac{56}{12}$$

$$\int_{-1}^{2} f(x)\,dx : |F(1) - F(-1)| + |F(2) - F(1)|$$

$$\left|-\tfrac{47}{12} - \tfrac{65}{12}\right| + \left|\tfrac{56}{12} - \left(-\tfrac{47}{12}\right)\right|$$

$$\frac{112}{12} + \frac{103}{12} = 215/12\ FE$$