

Aufgabe 14

a)

$$f(x) = (x + 4)(3x - 6)$$

$$f(x) = 0$$

$$x + 4 = 0$$

$$x_1 = -4$$

$$3x - 6 = 0$$

$$3x = 6$$

$$x_2 = 2$$

b)

$$f(x) = -2x^4 + 0,5x^2$$

$$f(x) = 0$$

$$-2x^4 + 0,5x^2 = 0$$

$$x^2 \cdot (-2x^2 + 0,5) = 0$$

$$x^2 = 0$$

$$x_1 = 0$$

$$-2x^2 + 0,5 = 0$$

$$-2x^2 = -0,5$$

$$x^2 = 0,25$$

$$x_{2,3} = \pm 0,5$$

c)

$$f(x) = (x^2 - 1)(x^2 + 3x + 2,25)$$

$$f(x) = 0$$

$$x^2 - 1 = 0$$

$$x^2 = 1$$

$$x_{1,2} = \pm 1$$

$$x^2 + 3x + 2,25 = 0$$

$$x_{3,4} = -\frac{3}{2} \pm \sqrt{\left(\frac{3}{2}\right)^2 - 2,25}$$

$$= -\frac{3}{2} \pm \sqrt{\frac{9}{4} - \frac{9}{4}}$$

$$= -\frac{3}{2} \pm 0$$

$$x_3 = -\frac{3}{2} = -1\frac{1}{2}$$