

Bestimmen Sie die Nullstellen der Funktion f mithilfe des Satzes vom Nullpunkt

a):

$$f(x) = (x - 4)(x + 5) = 0$$

$$(4 - 4) \rightarrow x_1 = 4$$

$$(-5 + 5) \rightarrow x_2 = -5$$

b):

$$f(x) = (x - 1)x = 0$$

$$(1 - 1) = 0 \rightarrow x_1 = 1$$

$$0 \rightarrow x_2 = 0$$

c):

$$f(x) = (x - 1)(x + 5)(x - 6)$$

$$(1 - 1) = 0 \rightarrow x_1 = 1$$

$$(-5 + 5) = 0 \rightarrow x_2 = -5$$

$$(6 - 6) = 0 \rightarrow x_3 = 6$$

d):

$$f(x) = -4x(x - 1)$$

$$(1 - 1) = 0 \rightarrow x_1 = 1$$

$$0 = 0 \rightarrow x_2 = 0$$

e):

$$f(x) = (2x - 1)(3x + 1)$$

$$(1 - 1) = 0 \rightarrow x_1 = 0.5$$

$$(-1 + 1) = 0 \rightarrow x_2 = -\frac{1}{3}$$

f):

$$f(x) = (2x^2 + 9)(3x^2 - 75x)$$

$$3x^2 - 75x = 0$$

$$3x \cdot x - 75x = 0 \mid : 3$$

$$x - 25 = 0 \mid \cdot -1$$

$$25 - 25 = 0 \rightarrow x_1 = 25$$

$$2x^2 + 9 = 0 \mid -9$$

$$2x^2 = -9 \mid : 2$$

$$x^2 = -4.5 \mid \sqrt{}$$

$$x = \text{imaginary}$$