S 154 Nr 6

d) Amplitude $a = 3$; Periode $p = 2$; gespiegelt an der x-Achse $\Rightarrow a^* = -3$

$$p = \frac{2\pi}{b} = 2 \Rightarrow b = \pi$$

$$f(x) = -3 \cdot \sin(\pi \cdot x)$$

e) Amplitude $a = 2{,}5$; Periode $p = 2$, Verschoben 0,5 LE in y-Richtung

$$p = \frac{2\pi}{b} = 2 \Rightarrow b = \pi$$

$$f(x) = 2{,}5 \sin(\pi \cdot x) + 0{,}5$$

f) Amplitude $a = 0{,}5$, Halbe Periode von $-2{,}5$ bis $+2{,}5 \Rightarrow p = 10$

Verschiebung 0,5 LE in y-Richtung

$$p = \frac{2\pi}{b} = 10 \Rightarrow b = \frac{2\pi}{10} = \frac{\pi}{5}$$

$$f(x) = 0{,}5 \sin\left(\frac{\pi}{5} \cdot x\right) + 0{,}5$$

S 154 Nr. 8

a) $f(x) = -2 \sin(3x) + 10$

$f'(x) = -2 \cos(3x) \cdot 3 = -6 \cos(3x)$

b) $f(x) = -\cos(3(x-2))$

$f'(x) = \sin(3(x-2)) \cdot 3 = 3 \cdot \sin(3(x-2))$

c) $f(x) = 0{,}2 \sin(5(x+1)) - 4$

$f'(x) = 0{,}2 \cos(5(x+1)) \cdot 5 = \cos(5(x+1))$

d) $f(x) = 2 + \cos\left(\frac{x}{3}\right) \Rightarrow f'(x) = -\sin\left(\frac{x}{3}\right) \cdot \frac{1}{3} = -\frac{1}{3} \sin\left(\frac{x}{3}\right)$

e) $f(x) = 1 - \cos(2(x-2)) \Rightarrow f'(x) = \sin(2(x-2)) \cdot 2 = 2 \cdot \sin(2(x-2))$

f) $f(x) = x + \sin(2x) - 4$

$f'(x) = 1 + \cos(2x) \cdot 2 = 1 + 2\cos(2x)$