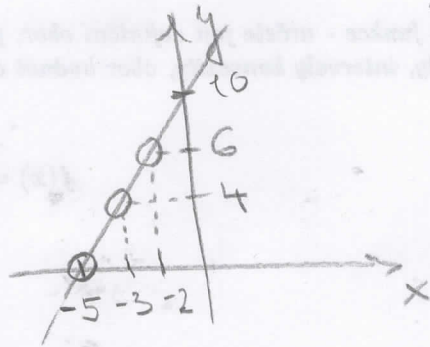


$$1. f(x) = \left(1 - \frac{1}{x+3}\right) : \frac{x+2}{2x^2+16x+30} = \frac{x+3-1}{x+3} \cdot \frac{2(x^2+8x+15)}{x+2}$$

$$= \frac{x+2}{x+3} \cdot \frac{2(x+5)(x+3)}{x+2} = 2x+10 \quad \begin{array}{l} x \neq -3 \\ x \neq -2 \\ x \neq -5 \end{array}$$

$$D_f = \mathbb{R} - \{-5; -3; -2\}$$

$$H_f = \mathbb{R} - \{0; 4; 6\}$$



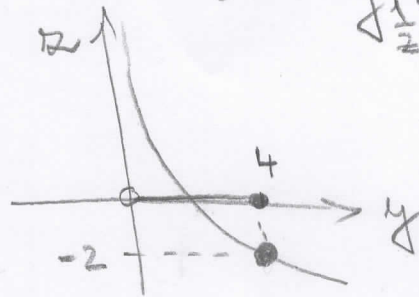
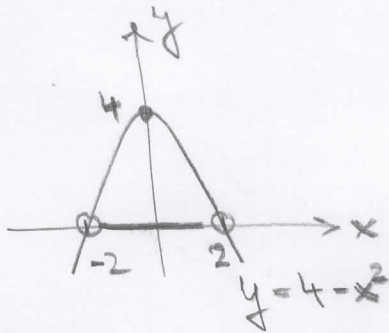
$$2. h(x) = \log_{\frac{1}{2}}(4-x^2)$$

$$4-x^2 > 0$$

$$D_h = (-2, 2) \longrightarrow (0, 4) \longrightarrow (-2, \infty) = H_h$$

$$y = 4 - x^2$$

$$R = \log_{\frac{1}{2}} y$$



$$\log_{\frac{1}{2}} 4 = -2$$

Funkce h není prvotní, neboť např. $h(1) = h(-1)$, proto h^{-1} neexistuje.

$$g(x) = \sqrt{3 - \log_2(x+1)}$$

$$1. 3 - \log_2(x+1) \geq 0$$

$$\log_2(x+1) \leq 3$$

$$x+1 \leq 8$$

$$x \leq 7$$

$$D_g = (-1, 7]$$

$$H_g = \langle 0, \infty)$$

$$x = \sqrt{3 - \log_2(y+1)}$$

$$x^2 = 3 - \log_2(y+1)$$

$$3 - x^2 = \log_2(y+1)$$

$$2^{3-x^2} = y+1$$

$$g^{-1}: y = 2^{3-x^2} - 1, x \in \langle 0, \infty)$$

$$11. x+1 > 0$$

$$x > -1$$