

1) $x \dots$ počet žáků

$$\frac{1}{2}x + \frac{1}{4}x + \frac{1}{6}x + 3 = x$$

$\underbrace{\hspace{10em}}$

$$\left(\frac{1}{2} + \frac{1}{4} + \frac{1}{6}\right)x$$

$$\frac{6+3+2}{12} = \frac{11}{12}$$

$$\frac{11}{12}x + 3 = x$$

$$3 = \frac{1}{12}x$$

$$\underline{\underline{36 = x}}$$

2) $2^3 = \frac{1}{8}$

$$4^{\frac{3}{2}} = \left(4^{\frac{1}{2}}\right)^3 = (\sqrt{4})^3 = 2^3 = 8$$

$$\log_{\frac{1}{2}} 8 = -3$$

$$\log_9 3 = \frac{1}{2}$$

$$\log_{100} 1000 = \frac{3}{2}$$

neboli $(100)^{\frac{3}{2}} = \left(\left(10^2\right)^{\frac{1}{2}}\right)^3 = 10^3 = 1000$

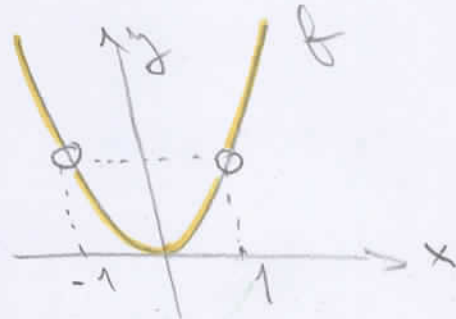
3) $f(x) = \left(\frac{2x^3}{x-1} - x^2\right) : \left(1 + \frac{2}{x-1}\right) =$

$$= \frac{2x^3 - x^2(x-1)}{x-1} : \frac{x-1+2}{x-1} = \frac{x^3+x^2}{x-1} \cdot \frac{x-1}{x+1} =$$

$$= \frac{x^2(x+1)}{x+1} = x^2$$

$$D_f = \mathbb{R} \setminus \{\pm 1\}$$

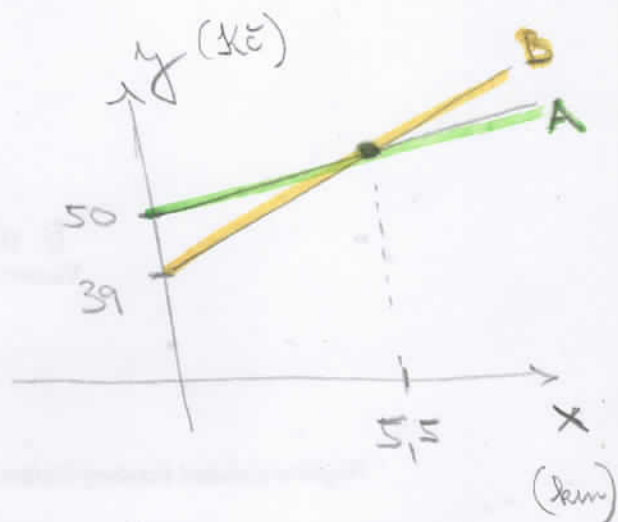
$$H_f = (0, \infty) \cup \{1\}$$



4) x ... vjezdá vzdálenost (km).
 y ... cena (Kč)

$$A: y = 50 + 42x$$

$$B: y = 39 + 44x$$



přesecí průběh: $50 + 42x = 39 + 44x$

$$11 = 2x$$

$$x = \underline{\underline{5,5}}$$

Pro trasu delší než 5,5 km je výhodnější
vzít si taxi A.

5) přímka $f: y = 2x + 1$

parabola $g: y = (x + 2)^2$

kružnice $k: (x - 4)^2 + \frac{2}{y} = 4$