Zadatak 50. Grafički prikaži sljedeće funkcije:

1) $f(x)=\dfrac{1}{x-1}$; **2)** $f(x)=\dfrac{2x}{x+2}$;

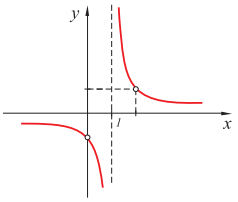
3) $f(x)=\dfrac{x+1}{2x-3}$; **4)** $y=\dfrac{2x+3}{1-x}$.

Rješenje. **1)**

$$y=\frac{1}{x-1}$$
$$(x-1)y=1 \implies C(1,0)$$
asimtote $x=1,\ y=0$

Tjemena:

$$\frac{a^2}{2}=1$$
$$a^2=2 \implies a=\sqrt{2}$$
$$T_1\Big(1-1,0-1\Big) \implies T_1(0,-1)$$
$$T_2\Big(1+1,0+1\Big) \implies T_1(2,1)$$

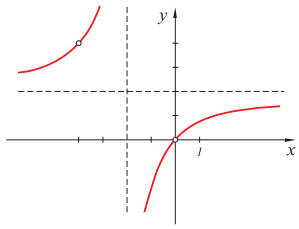


2)

$$y=\frac{2x}{x+2}$$
$$y=\frac{2x+4-4}{x+2}$$
$$y=2-\frac{4}{x+2}$$
$$y-2=-\frac{4}{x+2}$$
$$(x+2)(y-2)=-4 \implies C(-2,2)$$
asimtote $x=-2,\ y=2$

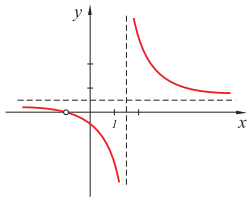
Tjemena:

$$-\frac{a^2}{2}=-4$$
$$a^2=8 \implies a=2\sqrt{2}$$
$$T_1\Big(-2-2,-2-2\Big) \implies T_1(-4,-4)$$
$$T_2\Big(-2+2,-2+2\Big) \implies T_1(0,0)$$



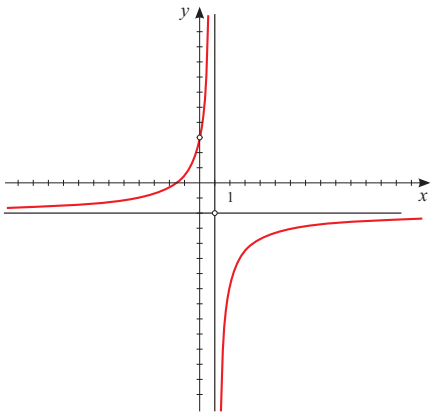
3)

$$y = \frac{x+1}{2x-3}$$
$$y = \frac{\frac{x}{2}+\frac{1}{2}}{x-\frac{3}{2}}$$
$$y = \frac{1}{2}\frac{x-\frac{3}{2}+\frac{5}{2}}{x-\frac{3}{2}}$$
$$y = \frac{1}{2}+\frac{1}{2}\frac{\frac{5}{2}}{x-\frac{3}{2}}$$
$$y-\frac{1}{2} = \frac{5}{4}\frac{1}{x-\frac{3}{2}}$$
$$\left(x-\tfrac{3}{2}\right)\left(y-\frac{1}{2}\right) = \frac{5}{4} \implies C\left(\frac{3}{2},\frac{1}{2}\right)$$
asimtote $x = \frac{3}{2},\ y = \frac{1}{2}$



4)

$$y = \frac{2x+3}{1-x}$$
$$y = \frac{-2x-3}{x-1}$$
$$y = \frac{-2(x-1)-2-3}{x-1}$$
$$y = -2-\frac{5}{x-1}$$
$$y+2 = -\frac{5}{x-1}$$
$$(x-1)(y+2) = -5 \implies C(1,-2)$$
asimtote $x = 1,\ y = -2$


y
1
x