21/08/22

Lista 2

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1a) $x^2+y^2-1>0 \Rightarrow x^2>-y^2+1$

$D_f=\{(x,y)\in\mathbb{R}^2 / x^2>-y^2+1\}$

b)

$D_f=\{(x,y)\in\mathbb{R}^2 / x\neq 0\}$

$I_f=\{\in\in\mathbb{R} / x\neq 90 \ e\ x\neq 270\}$

c) $x-y\geq 0 \Rightarrow x\geq y$

$D_f=\{(x,y)\in\mathbb{R}^2 / x\geq y\}$

d) $xy^2-x^3>0 \Rightarrow x.y^2>x^3 \Rightarrow y^2>x^2$

$D_f=\{(x,y)\in\mathbb{R}^2 / y^2>x^2\}$

e) $y^x\neq 0$

$D_f=\{(x,y)\in\mathbb{R}^2 / y^x\neq 0\}$

f) $D_f=\mathbb{R}^2$

g) $16-4x^2-y^2>0 \Rightarrow -4x^2-y^2>-16 \Rightarrow 4x^2+y^2<16$

$D_f=\{(x,y)\in\mathbb{R}^2 / 4x^2+y^2<16\}$

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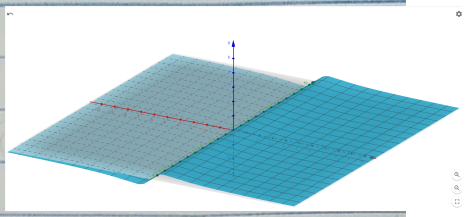
2b) $x^2+1 \neq 0 \Rightarrow x^2 \neq -1$

$D_f = \{ x \in \mathbb{R} / x^2 \neq 1 \}$

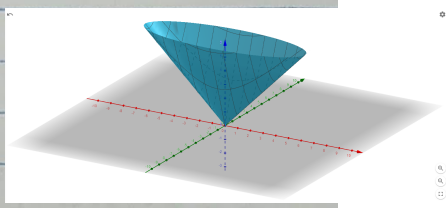
$I_f = \mathbb{R}$



c) $x^2 + 9y^2 \geq 0 \Rightarrow x^2 \geq -9y^2$

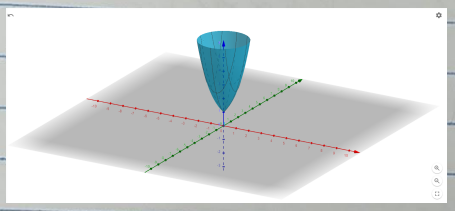
$D_f = \{ (x,y) \in \mathbb{R}^2 / x^2 \geq -9y^2 \}$

$I_f = \mathbb{R}_0^+$



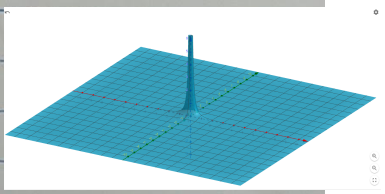
h) $D_f = \mathbb{R}^2$

$I_f = \mathbb{R}^+$



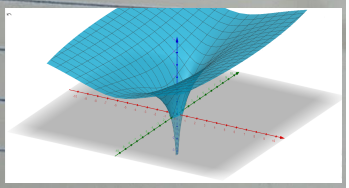
i) $D_f = \{ (x,y) \in \mathbb{R}^2 / x \neq 0 \text{ ou } y \neq 0 \}$

$I_f = \mathbb{R}^*$



k) $D_f = \{ (x,y) \in \mathbb{R}^2 / x \neq 0 \text{ ou } y \neq 0 \}$

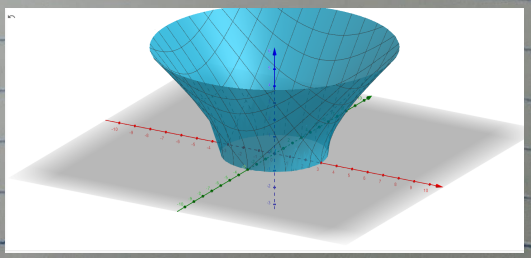
$I_f = \mathbb{R}$



m) $x^2 + y^2 > 9$

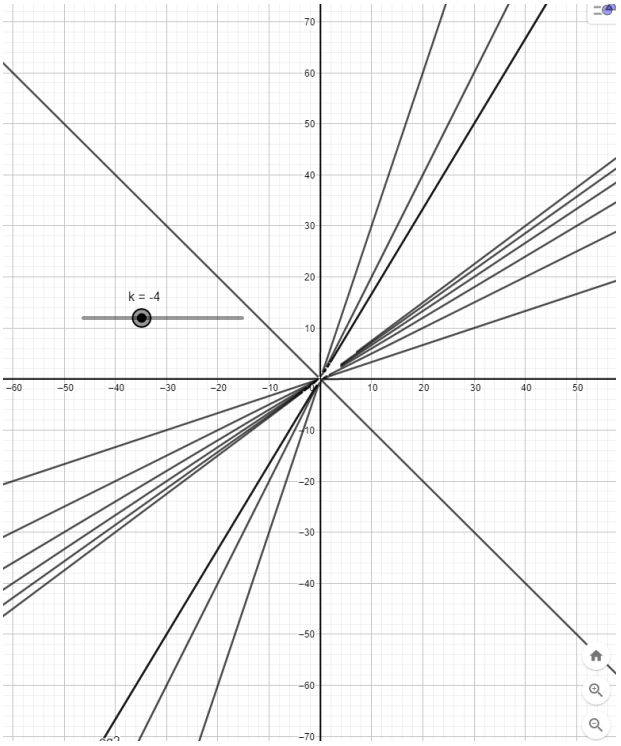
$D_f = \{ (x,y) \in \mathbb{R}^2 / x^2 + y^2 > 9 \}$

$I_f = \mathbb{R}_0^+$

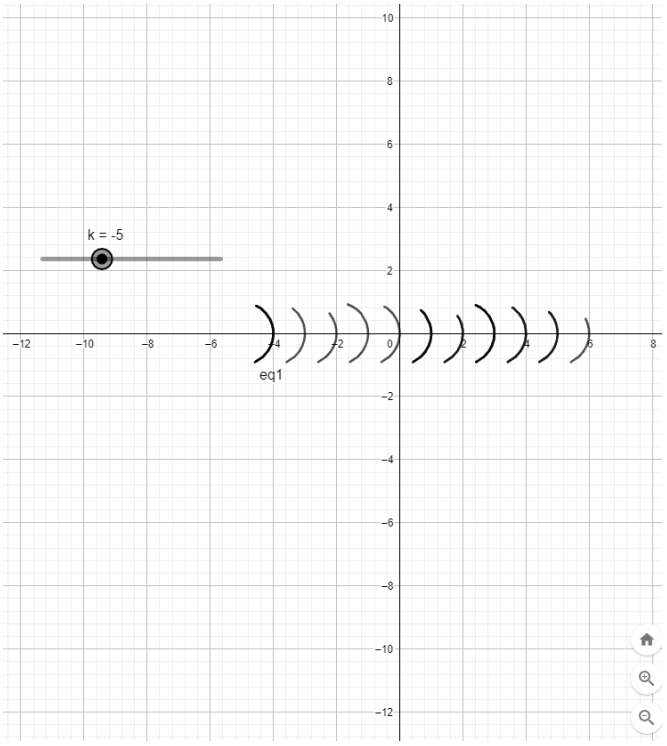


SLIDE 20

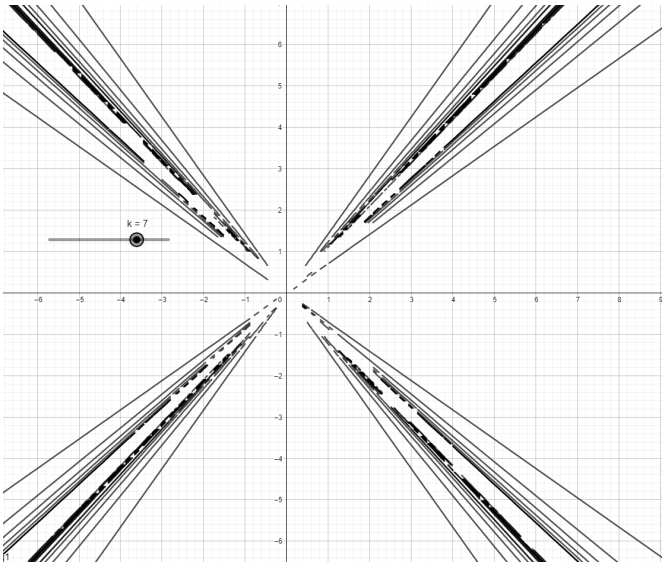
1a)



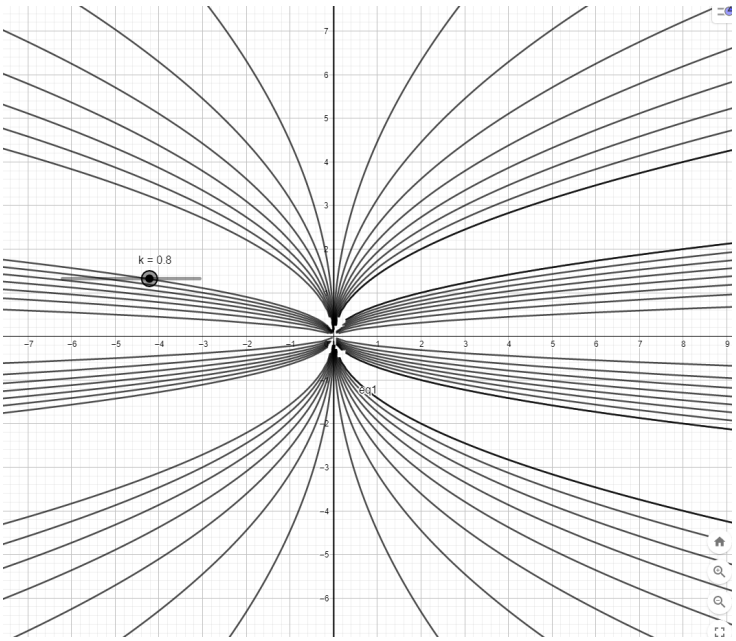
1b)



1c)



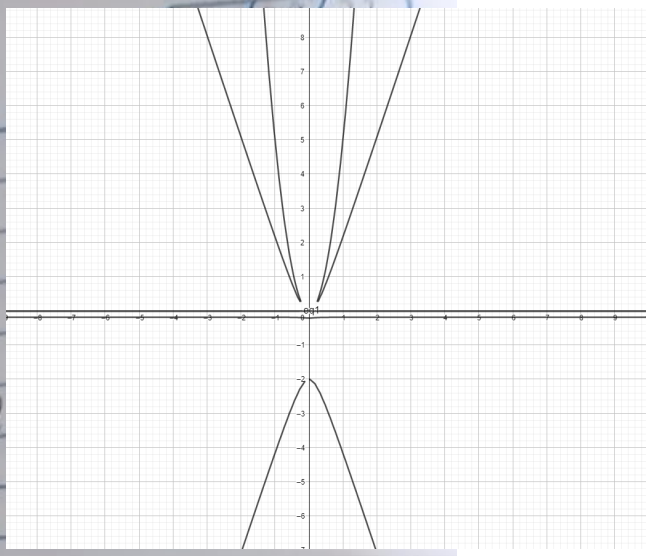
1d)



Slide 20

2) $x^2 - y^2 \neq 0 \Rightarrow x^2 \neq y^2$

$D_f = \{(x,y) \in \mathbb{R}^2 / x^2 \neq y^2\}$



Slide 21 e 22

3) I ⇒ f
II ⇒ e
III ⇒ d
IV ⇒ a
V ⇒ c
VI ⇒ b

Slide 43

a) $\frac{0^2-0^2}{1+0^2+0^2} = \frac{0}{1} = 0$

b) $\frac{0}{0^2+0^2} = \frac{0}{0} = \nexists$

c) $(0^2+0^2) \cdot \operatorname{sen}\left(\frac{1}{0^2+0^2}\right) = 0$

d) $16 \cdot \operatorname{sen} 45 = 16 \cdot \frac{\sqrt{2}}{2} = 8\sqrt{2}$

e) $(1+0^2) \cdot 1 = 1$

f) $\frac{1+0-0}{0^2+0^2} = \frac{1}{0} = \nexists$

g) $\frac{4.0 - 0 - 3.0}{2.0 - 5.0 + 2.0} = \frac{0}{0} = \nexists$