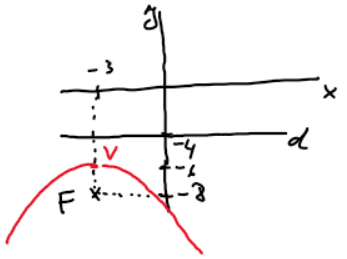
Parabola III.

Př.1. Napiš rci paraboly, která má ohnisko $F[-3,-8]$ a řídicí přímku $d: y=-4$



$V[-3;-6]$

$p = r(F,d) = 4$

tvar II: $(x+3)^2 = -8(y+6)$

Př.2 Urči F, V, d paraboly $y^2+10x+8y-10=0$

doplníme na □:

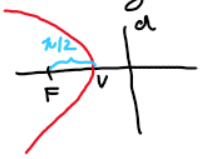
$y^2+8y+10x-10=0$

$(y+4)^2-16+10x-10=0$

$(y+4)^2 = -10x+26$

P: $(y+4)^2 = -10\left(x-\frac{13}{5}\right)$

$2p$



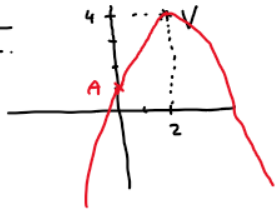
$V\left[\frac{13}{5}; -4\right]$ $\quad x = \frac{13}{5}-\frac{5}{2} = \frac{1}{10}$

$p=5$ $\quad F\left[\frac{1}{10}; -4\right]$

$d: x = \frac{13}{5}+\frac{5}{2} = \frac{51}{10}$

Př.3. Určete vrcholovou rci P, která má osu // osa y, $V[2;4]$ a prochází bodem $A[0;1]$

$\Rightarrow$ II.



$(x-m)^2 = -2p(y-n)$

$(x-2)^2 = -2p(y-4)$

A: $4 = -2p(-3)$

$p = \frac{2}{3}$

P: $(x-2)^2 = -\frac{4}{3}(y-4)$

Př.4. Určete rci tečny P v jejím bodě $T[-1; y_0]$

P: $y = 2x^2-5x+1$

$y_0 = 2\cdot(-1)^2+5+1 = 8 \Rightarrow T[-1;8]$

$2x^2-5x-y+1=0$

$2\left(x^2-\frac{5}{2}x\right)-y+1=0$

$2\left(x-\frac{5}{4}\right)^2-\frac{50}{16}-y+1=0$

$2\left(x-\frac{5}{4}\right)^2 = y+\frac{17}{8} \quad /:2$

P: $\left(x-\frac{5}{4}\right)^2 = \frac{1}{2}\left(y+\frac{17}{8}\right)$ $\quad 2p = \frac{1}{2}$, $p = \frac{1}{4}$

tečna:

$(x-m)(x_0-m) = p(y-n)+p(y_0-n)$

$\left(x-\frac{5}{4}\right)\left(-1-\frac{5}{4}\right) = \frac{1}{4}\left(y+\frac{17}{8}\right)+\frac{1}{4}\left(8+\frac{17}{8}\right)$

$\left(x-\frac{5}{4}\right)\cdot\left(-\frac{9}{4}\right) = \frac{1}{4}y+\frac{17}{32}+2+\frac{17}{32}$

$-\frac{9}{4}x+\frac{45}{16} = \frac{1}{4}y+\frac{17}{16}+2$

$-\frac{9}{4}x+\frac{45}{16} = \frac{1}{4}y+\frac{49}{16} \quad /\cdot 16$

$-36x-4 = 4y$

t: $9x+y+1=0$