1) $f = \{(x,y) \in \mathbb{R} \times \mathbb{C} \mid y = x^2 - 7x + 10\}$ --> Eigenschaften

--> $f^{-1}(x)$

$f(x) = x^2 - 7x + 10 = (x-2)(x-5)$

$x_1 = 2 \lor x_2 = 5$

$\to S(3,5 / -2,25)$

$f(\frac{7}{2}) = (\frac{7}{2})^2 - 7 \cdot \frac{7}{2} + 10$

$= \frac{49}{4} - \frac{49}{2} + 10 = \frac{49 - 98 + 40}{4} = -\frac{9}{4} = -2,25$

$(x - \frac{7}{2})^2 - (\frac{7}{2})^2 + 10 = (x - \frac{7}{2})^2 - \frac{9}{4} \Rightarrow (\frac{7}{2} / -\frac{9}{4})$

$(x+a)^2 + b \Rightarrow S(-a / b)$

$\mathbb{D} = \mathbb{R}^{\geq 3,5}$; $\mathbb{W} = \mathbb{R}^{\geq -2,25}$

$(x-3,5)^2 - 2,25 = y$

$(x-3,5)^2 = y + 2,25$

$x = 3,5 \pm \sqrt{y + 2,25}$

$\to f^{-1}(x) = 3,5 \pm \sqrt{x + 2,25}$

$\mathbb{D} = \mathbb{R}^{\geq -2,25}$

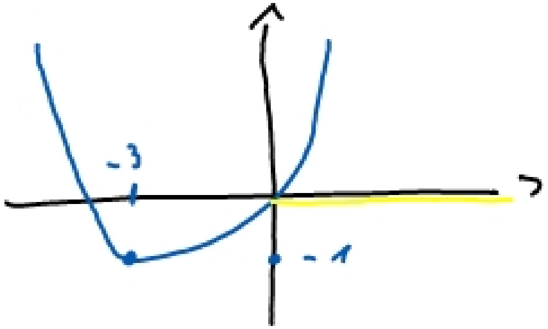
$\mathbb{W} = \mathbb{R}^{\geq 3,5}$

1) $\mathcal{A} = \{(x,y) \in \mathbb{R}^+ \times \mathbb{Z} \mid y - 8 = x^2 + 6x\}$

2) $\heartsuit = \{(x,y) \in \mathbb{R} \times \mathbb{R} \mid y = 2 \cdot \sin(\tfrac{1}{2}x)\}$

1) $f(x) = x^2 + 6x + 8 \Rightarrow f'(x) = 2x + 6 \Rightarrow x_1 = -3$

$$\left.\begin{array}{l} x_1 = -3 \\ f(-3) = -1 \end{array}\right\} S(-3/-1)$$



$\mathbb{D} = \mathbb{R}^+$; $\mathbb{W} = \mathbb{R}^{>8}$

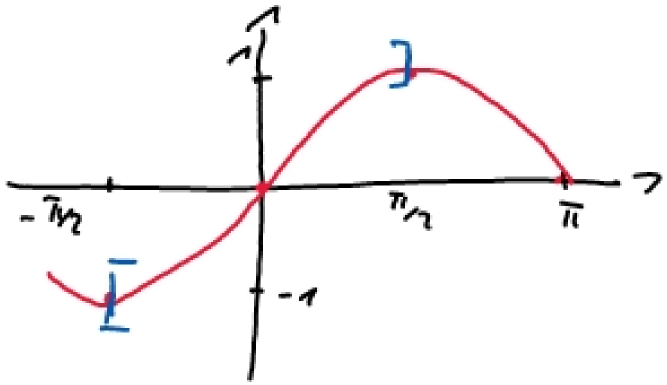
$y = x^2 + 6x + 8 = (x+3)^2 - 3^2 + 8 = (x+3)^2 - 1 \quad | +1$

$y + 1 = (x+3)^2$

$x = -3 \pm \sqrt{y+1}$

$f^{-1}(x) = -3 \pm \sqrt{x+1}$; $\mathbb{D} = \mathbb{R}^{>8}$; $\mathbb{W} = \mathbb{R}^+$

2) $f(x) = 2 \cdot \sin(\frac{1}{2}x)$



$\mathcal{G} = \{(x,y) \in [-\pi;\pi] \times [-2;2] \mid y = 2 \cdot \sin(\frac{1}{2}x)\}$

$$y = 2 \cdot \sin(\tfrac{1}{2}x)$$

$$\frac{y}{2} = \sin(\tfrac{1}{2}x)$$

$$\arcsin(\tfrac{y}{2}) = \tfrac{1}{2}x$$

$$f^{-1}(x) = 2 \cdot \arcsin(\tfrac{x}{2})$$

$\mathbb{D} = x \in [-2;2]$

$\mathbb{W} = y \in [-\pi;\pi]$