① a) $\left(\frac{f}{g}\right)(2) = \frac{2^2+1}{\frac{4+1}{5}} = 5$

b) $(f \circ g)(x) = f(g(x)) = f\left(\frac{2x+1}{x+3}\right) = \left(\frac{2x+1}{x+3}\right)^2 + 1$

$= \frac{4x^2+4x+1}{x^2+6x+9} + \frac{x^2+6x+9}{x^2+6x+9} = \frac{5x^2+10x+10}{x^2+6x+9}$

c) $(g \circ f)(-4) = g(f(-4)) = g(17) = \frac{2 \cdot 17+1}{17+3} = \frac{35}{20} = \frac{7}{4}$

d) $g^{-1}(6)$

| $x$ | 6 |
|---|---|
| $g^{-1}(x)$ | a |

$\Leftrightarrow$

| $x$ | a |
|---|---|
| $g(x)$ | 6 |

$g(x) = \frac{2x+1}{x+3} = 6 \Leftrightarrow \frac{2x+1}{x+3} - \frac{6x+18}{x+3} = 0$

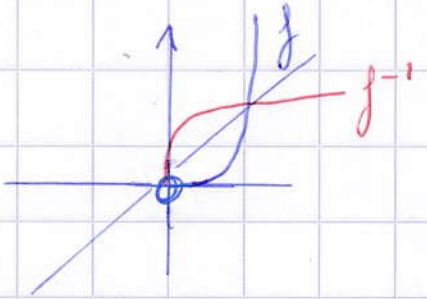
$\Leftrightarrow \frac{2x+1-6x-18}{x+3} = 0$

$\Leftrightarrow \frac{-4x-17}{x+3} = 0 \Rightarrow x = -\frac{17}{4}$

e) 8

② $f(f(f(8))) = f(f(2^6)) = f(2^{12}) = 2^{24}$ D

③ a)




$f^{-1}$ is grafiek van een functie, dus $f$ is inverteerbaar

b) $f^{-1}(x) = \sqrt[14]{x}$

c) De grafieken van $f$ en $f^{-1}$ zijn elkaars spiegelbeeld tov. $y = x$

④ $y = -\sqrt{x+8}$ $\quad x \geq -8$ $\quad y \leq 0$

$x = -\sqrt{y+8}$ $\quad y \geq -8$ $\quad x \leq 0$

$x^2 = y + 8$ $\quad x \leq 0$ $\quad y \geq -8$

$y = x^2 - 8 \quad x \leq 0 \quad y \geq -8$

⑤