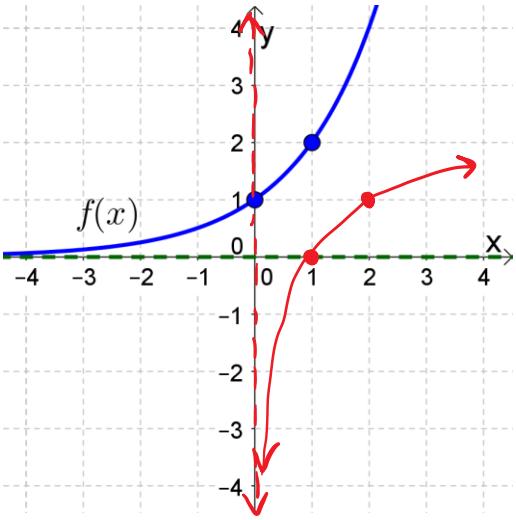
1.
   a) 0
   b) $\frac{1}{\sqrt{x-2}}$ Domain: $(2,\infty)$
   c) $\sqrt{\frac{1}{x}-2}$ Domain: $\left(0,\frac{1}{2}\right]$

2. $f^{-1}(x)=(x-2)^2+3$; Domain of f^{-1} is $[2,\infty)$

3.



4.
   a) $\frac{3}{4}$
   b) undefined
   c) 33
   d) $\frac{x^2-3}{x^2-4}$ Domain: $\{x|x\neq 2\}$
   e) $\left(\frac{x}{x-1}\right)^2-3$ Domain: $\{x|x\neq 1\}$
   f) x; The inverse of f is $f^{-1}(x)=\frac{x}{x-1}$.

5.
   a) undefined
   b) 3
   c) 1
   d) $\sqrt{-2x-1}$ Domain: $\left(-\infty,-\frac{1}{2}\right]$
   e) $1-2\sqrt{x-2}$ Domain: $[2,\infty)$
   f) $\sqrt{\sqrt{x-2}-2}$ Domain: $[6,\infty)$

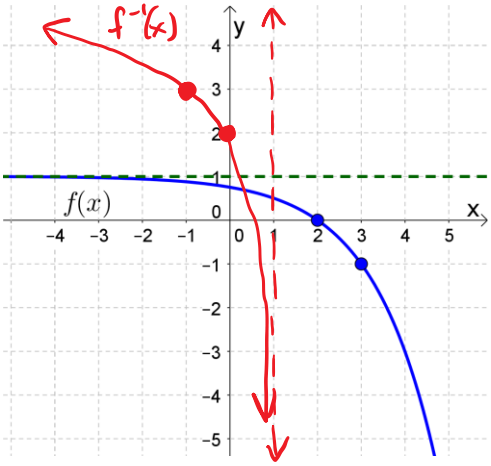
6. See homework solutions.

7. $f\big(g(x)\big)=f\left(\sqrt[3]{x-4}\right)=\left(\sqrt[3]{x-4}\right)^3+4=x-4+4=x$
   $g\big(f(x)\big)=g(x^3+4)=\sqrt[3]{(x^3+4)-4}=\sqrt[3]{x^3}=x$

8. $f^{-1}(x) = \frac{-3x-1}{2x-1}$ Domain: $\left\{x \middle| x \neq \frac{1}{2}\right\}$

9. $f^{-1}(x) = \sqrt{9-x}$ Domain: $(-\infty, 9]$

10.



11.