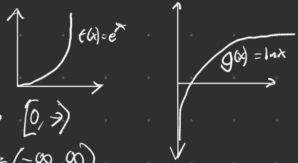
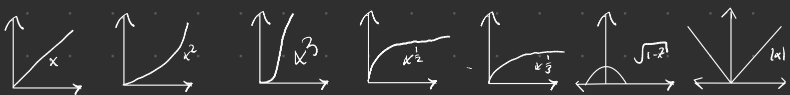
(2)



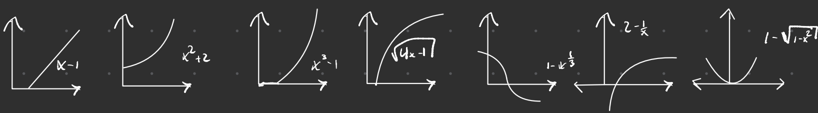
$f(A) \supset [0, \to)$

$g(A) = (-\infty, \infty)$

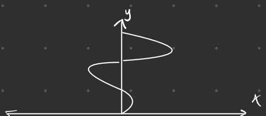
(4)



(5)



(7)



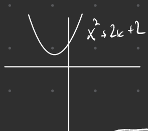
(9) $f(x) = e^x$

$y = e^x$

$x = \ln y$

$\underline{\underline{f(y) = \ln y}}$

(10)



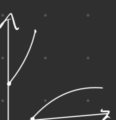
$y = x^2+2x+2$

$x = \frac{-2 \pm \sqrt{2^2-4(2-y)}}{2} = -1 \pm \sqrt{y-1}$ to løsninger

så ikke injektiv

(11) $x, \sqrt{x}, \sqrt[3]{x}, \sqrt{1-x^2}$

(12)



(13) $(0, \frac{\pi}{2})$ er $\sin(x)$ konstant stigende

(14) Alle punktene på planet ligger i planet som skjærer origo.

Normalvektoren $(2,3,-1) \Rightarrow z = f(x,y) = 2x+3$

(23) $f'(x) = \lim_{h\to 0} \frac{(x+h)^2 - x^2}{h} = \lim_{h\to 0} \frac{\cancel{x^2} + 2hx + h^2 - \cancel{x^2}}{h} = \lim_{h\to 0} 2x+h = \underline{\underline{2x}}$

(24) $f'(x) = \lim_{h\to 0} \frac{(x+h)^n + x^n}{h} = \lim_{h\to 0} \frac{\cancel{x^n} + nx^{n-1}h + n x^{n-2}h^2 + \dots + h^n - \cancel{x^n}}{h}$ ser mønsteret $nx^{n-1}h$

forenkler $\frac{nx^{n-1}h + h^{2}}{\cancel{h}} = nx^{n-1} + h = \underline{\underline{nx^{n-1}}}$

(25) $\frac{d}{dx} f^{-1}(x) = \frac{1}{f'(f^{-1}(x))}$

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

$f'(f^{-1}(x)) \cdot (f^{-1}(x))' = 1$

$$\frac{d}{dx} f^{-1}(x) = \underline{\underline{\frac{1}{f'(f^{-1}(x))}}}$$

Gamle eksamensoppgaver:

(1) $f(x) = x^4 + x^3 + x^2 + x$

$f: [0,2] \to [0,30]$

$f'(x) = 4x^3 + 3x^2 + 2x + 1$

$f'(0) = 1$

$f'(1) = 4+3+2+1 = 10$

$f'(2) = 4 \cdot 2^3 + 3 \cdot 2^3 + 2 \cdot 2 + 1 = 32 + 24 + 4 + 1 = 61$

ser at den stiger i intervallet

$f(1) = 1^4 + 1^3 + 1^2 + 1 = 4$

$g(4) = 1$

$$g'(x) = \frac{1}{f'(g(4))} = \frac{1}{f'(1)} = \underline{\underline{\frac{1}{10}}}$$