MA0001 - Øving 2 - Martin Skatvedt

mandag 5. september 2022 15:10

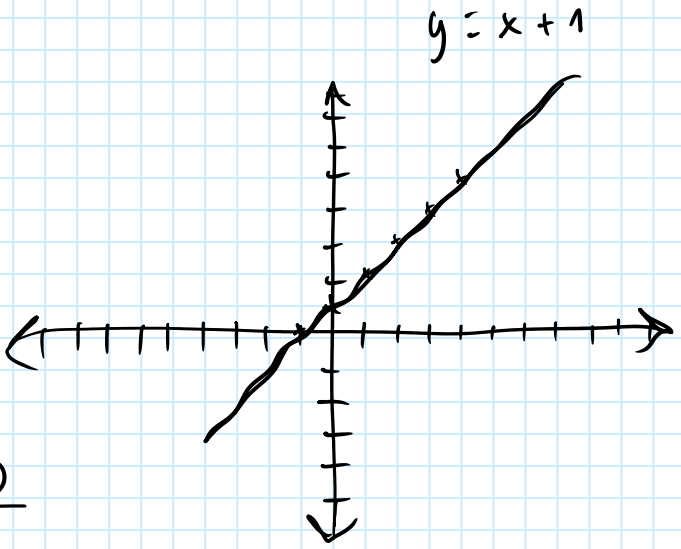
1.11.5

$P: (2,3) \quad a = 1$

$y - y_1 = a(x - x_1)$

$y - 3 = 1(x - 2)$

$y = x + 1$



$x = 0 \rightarrow y = 1$

skjærer y-akse i $(0,1)$

$y = 0 \rightarrow x = -1$

skjærer x-akse i $(-1,0)$

2.1.10

$p^2 > 4q \quad x^2 + px + q = 0$

$x = \frac{-p \pm \sqrt{p^2 - 4q}}{2}$

siden $p^2 > 4q$ vil vi få en verdi m >0 inne i roten og ha to løsninger

$x_1 + x_2 = -p$ og $x_1 \cdot x_2 = q$

2.4.1

x: celcius
y: fahrenheit

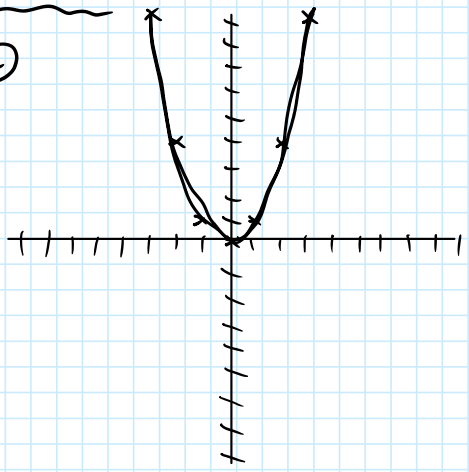
To punkter: (0, 32) og (100, 212)

$$a = \frac{y_2 - y_1}{x_2 - x_1} = \frac{212 - 32}{100 - 0} = \frac{180}{100} = \frac{18}{10} = \frac{9}{5}$$

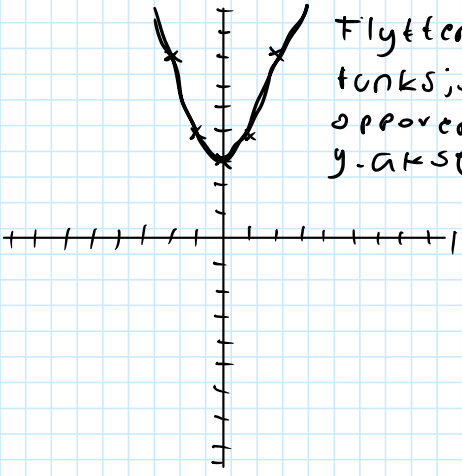
$$y - y_1 = a(x - x_1) \rightarrow y - 32 = \frac{9}{5}(x - 0) \rightarrow y = \frac{9}{5}x + 32$$

2.B.3

a)

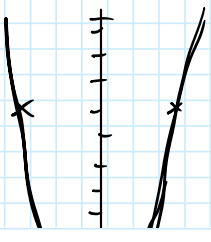


b)

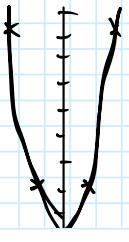


Flytter funksjonen oppover y-aksen

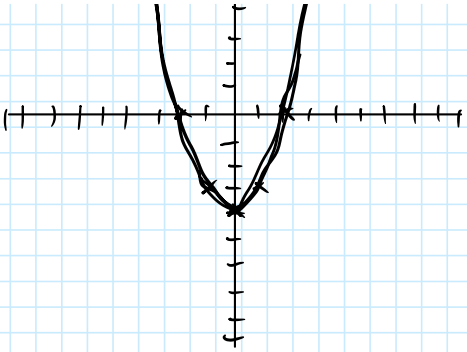
c)

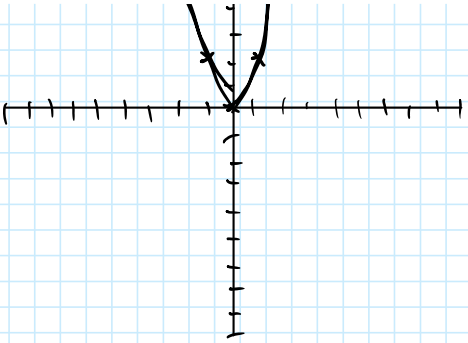


d)

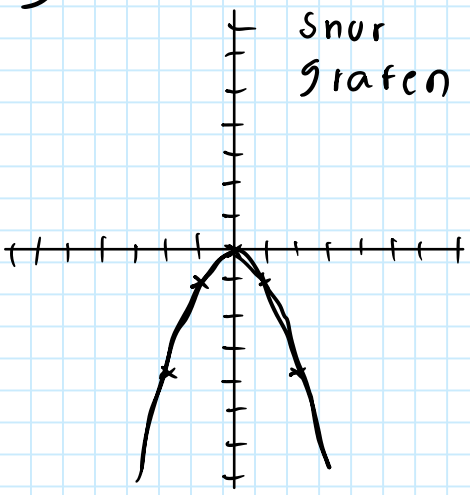


Brattere stigning

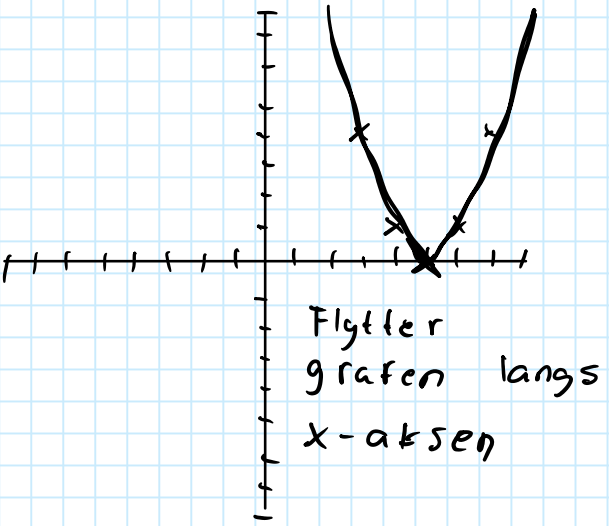




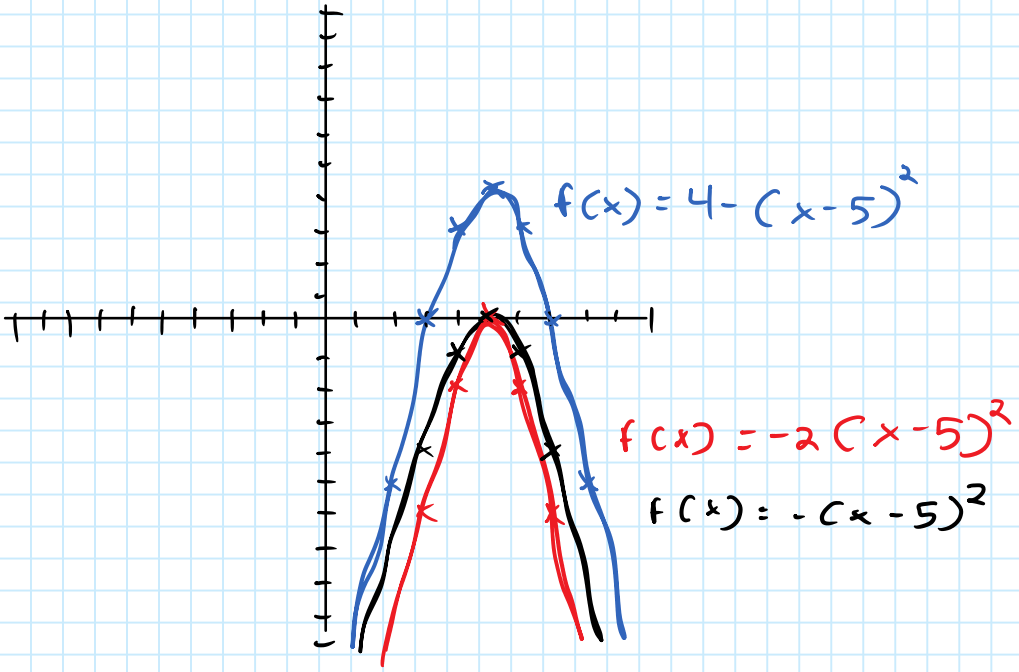
e)


Snur
grafen

f)


Flytter
grafen langs
x-aksen

g)


$f(x) = 4-(x-5)^2$
$f(x) = -2(x-5)^2$
$f(x) = -(x-5)^2$

5

$d(t) = \frac{1}{2}t^2 - 10t$

$d'(t) = t - 10$

$d't = 0 \rightarrow t = 10$

$d(10) = \frac{1}{2}(10)^2 - 10(10) \rightarrow \frac{1}{2} \cdot 100 - 100 = -50$

Etter 10 sekunder er han på det dypeste på -50 m

6

$h(t) = -5t^2 + 10t + 15 \qquad h'(t) = -10t + 10$

$h(t) = 0 \rightarrow 0 = -5t^2 + 10t + 5$

$x = \frac{-10 \pm \sqrt{10^2 - 4 \cdot (-5) \cdot 5}}{2 \cdot (-5)} = \frac{-10 \pm \sqrt{225}}{-10} = \frac{-10 \pm 15}{-10}$

$x_1 = \frac{-10 + 15}{-10} = \frac{5}{-10} = -\frac{1}{2} \qquad x_2 = \frac{-10 - 15}{-10} = \frac{-25}{-10} = \frac{5}{2}$

Etter 2,5 sekunder treffer ballen vannet

$h'(t) = 0 \rightarrow 0 = -10t + 10 \rightarrow 10t = 10 \rightarrow t = 1$

$h(1) = -5(1)^2 + 10 \cdot 1 + 15 = -5 + 10 + 15 = 20\text{m}$

Etter 1s er ballen på 20m, som er høyest