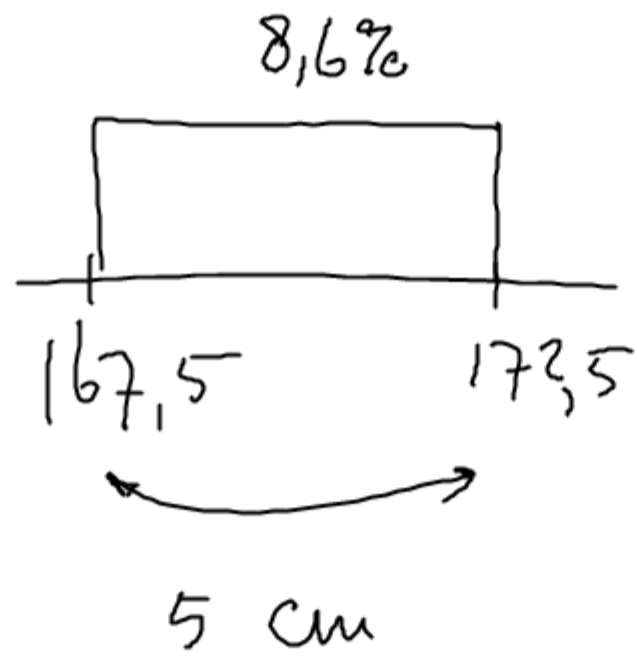
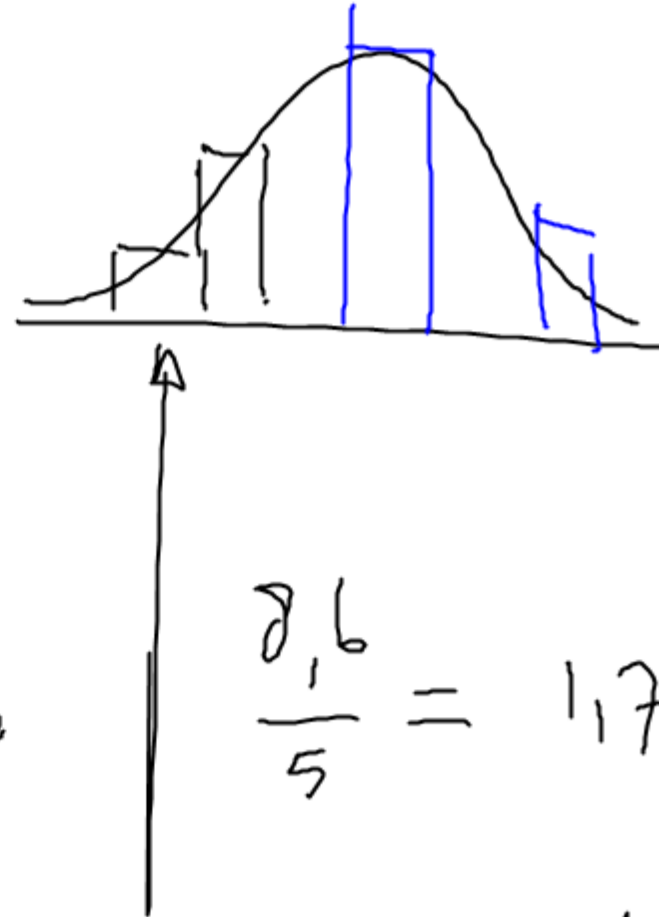


2

d



dit is een stuk uit

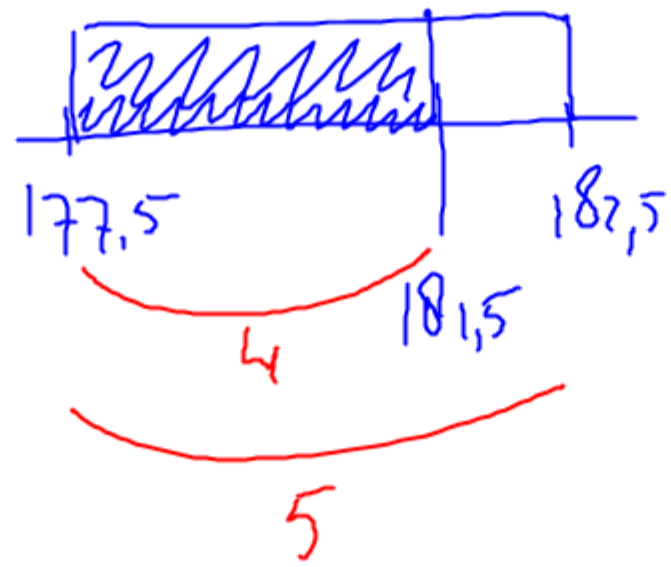


als gehyponat verdeeld
dan elke 1 cm evenveel %

$$\frac{8,6}{5} = 1,72\%$$

worden naar rechts in een
klasse zetten meer %

e ①



gelykmatig verdeeld
want staafje in het
midden.

dus $\frac{4}{5}$ deel 30%

f hoeveel % korter dan 181,5 cm

A 2,7

B 8,6

C 16,6

D 30% van 26,6

) optellen

ma	6-6	§8.2	
di	7-6	§8.3	
di	14-6	§8.5	
do	16-6	§8.6	
ma	20-6	§8.7	
di	21-6	§8.8	
do	23-6	—	(maximum)
ma	27-6	eq. 50-11.30	test h7/h8

8

gem 140
sd 5,5

b

gem - sd 134,5
gem + sd 145,5

hoeveel?



Stappen aflesen en optellen
 ≈ 1400

c


$$\frac{1400}{2000} \times 100\% = 70\%$$

Ja, dat is ongeveer 68%

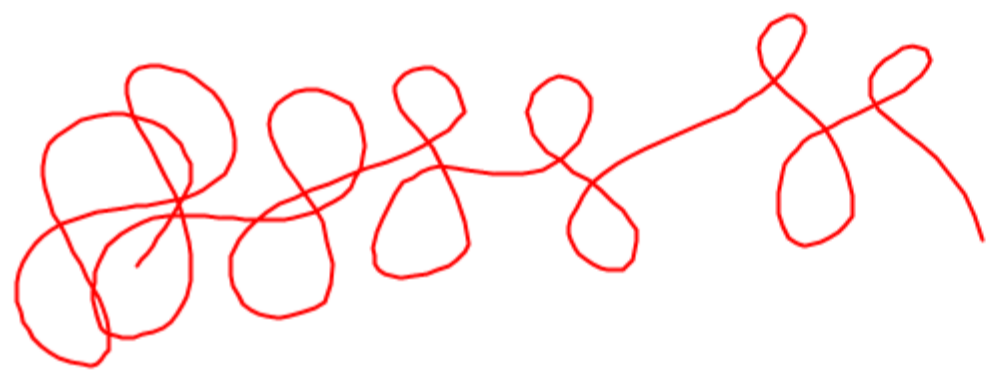
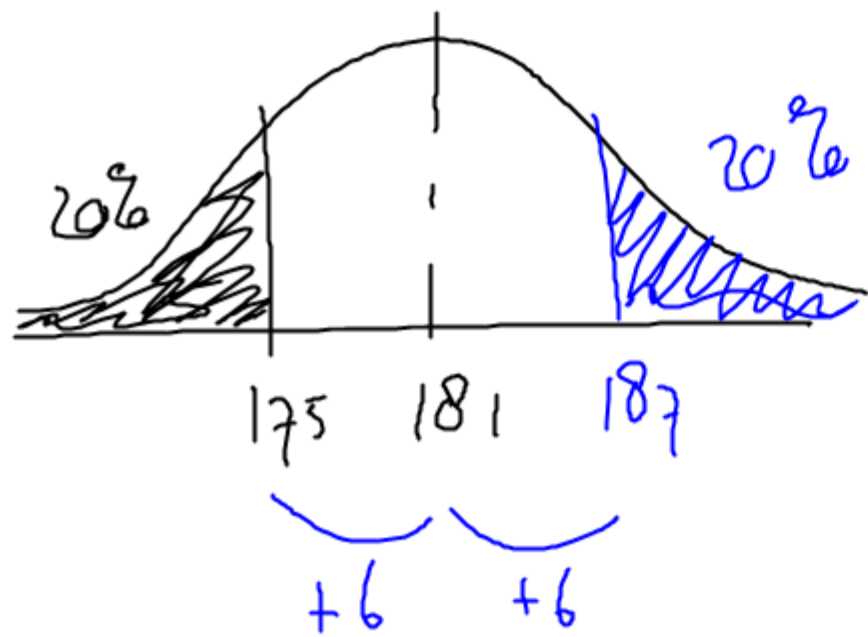
d normaal verdeeld:

* 68% tussen $m - s$ en $m + s$

* 95% tussen $m - 2s$ en $m + 2s$

* symmetrie  median = gemiddelde

76



10

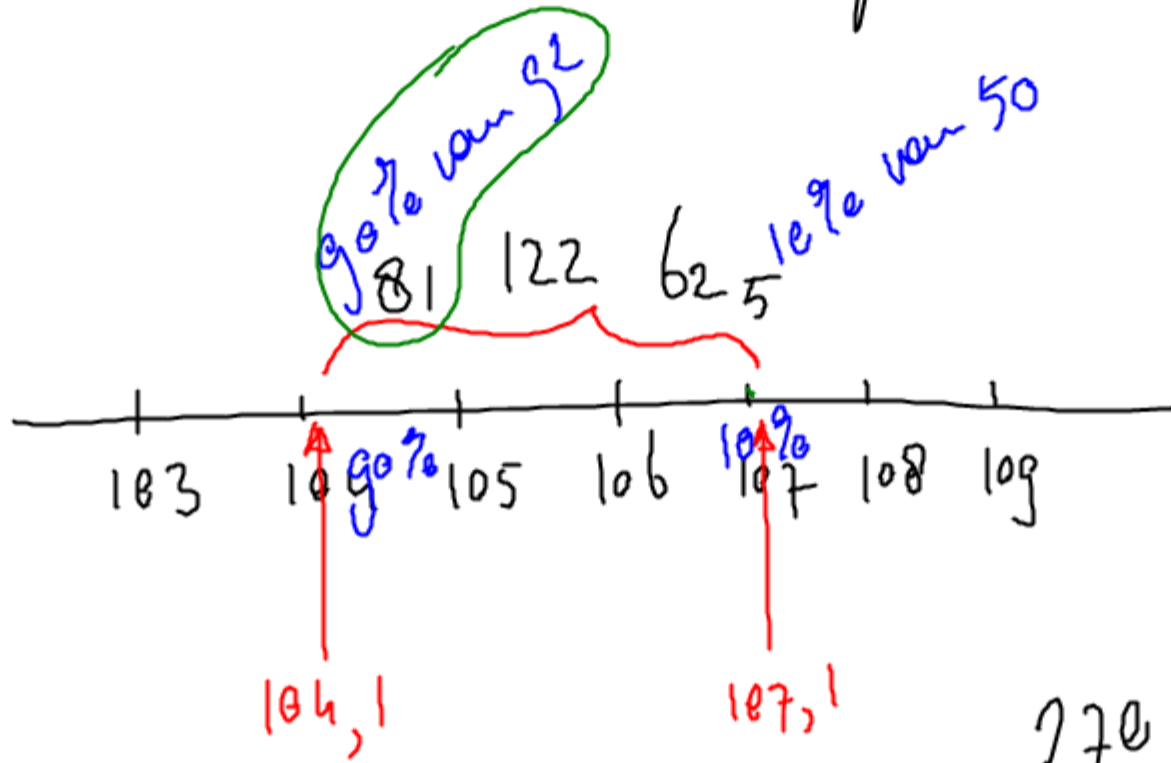
$$m = 105,6$$

$$s = 1,5$$

$$m - s = \underline{104,1}$$

$$m + s = \underline{107,1}$$

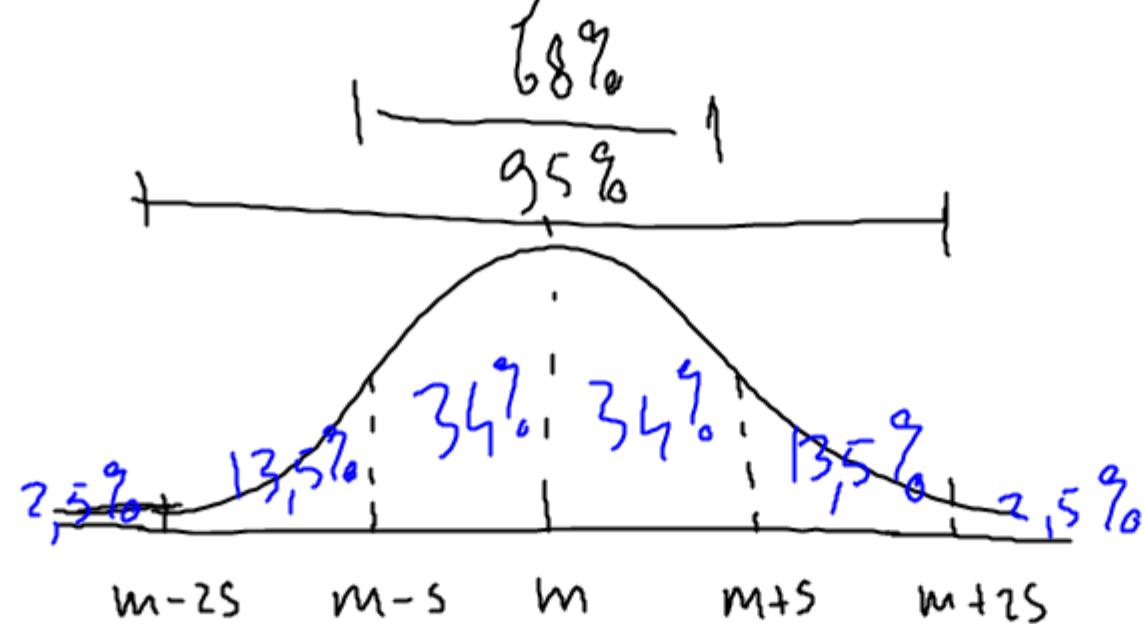
) hoeveel % zal er tussen deze 2 grenzen?



$$\begin{array}{r} 81 \\ 122 \\ 62 \\ \hline 5 \\ \hline 270 \end{array} +$$

$$\frac{270}{400} \times 100\% = 67,5\%$$

normale verdeling



Maar bereken je nu percentages (andere de knoosme)

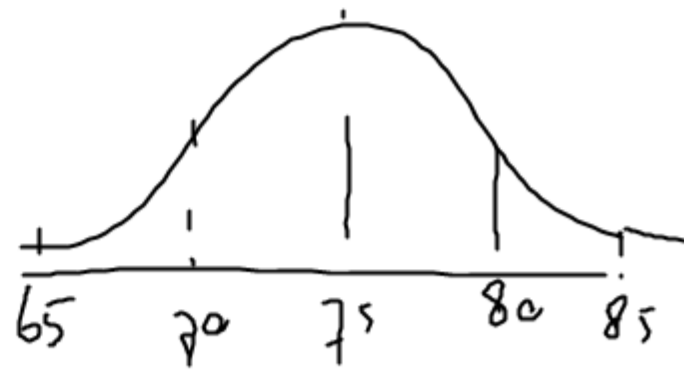
Vb

groep mensen

gem gewicht 75 kg

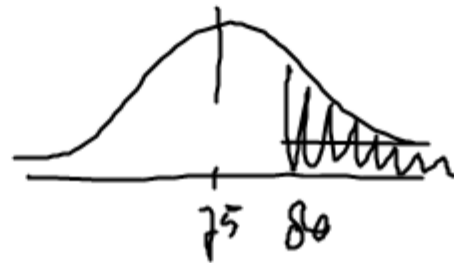
stand. afwijking 5 kg

X gewicht



hoeveel % van de groep heeft een gewicht van 80 kg of meer

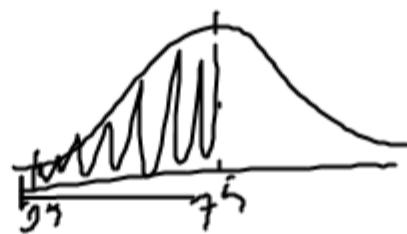
$$P(X > 80)$$



16%

hoeveel % tussen de 65 en de 75 kg

$$P(65 < X < 75)$$



47,5%

X gewicht
hoeveel Σ tussen de 71 en de 77 kg ?



$$\mu = 75$$
$$\sigma = 5$$

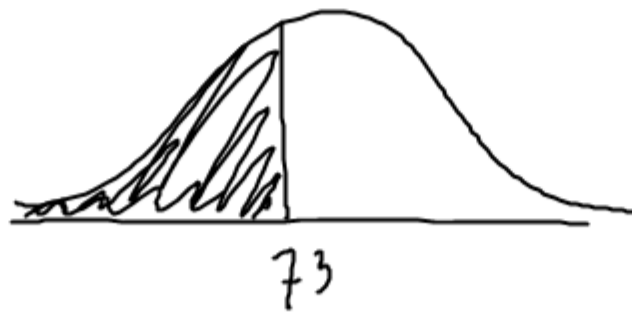
$$P(71 < X < 77)$$

$$\text{normalcdf}(71, 77, 75, 5) = 0,4436$$

2nd vers
nr. 2

44%

hoeveel % X gewicht lichter dan 73 kg?



$$\mu = 75$$
$$\sigma = 5$$

$$P(X < 73)$$

$$\text{normalcdf}(-1E99, 73, 75, 5) = 0,3446$$

$$-1 \cdot 10^{99}$$

34%

21 b



$$\mu = 50,6$$

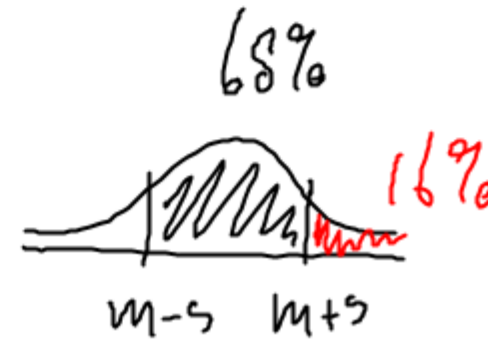
$$\sigma = 0,4$$

b

meer dan 51 cl

$$51 = 50,6 + 0,4$$

dus 51 is $\mu + \sigma$

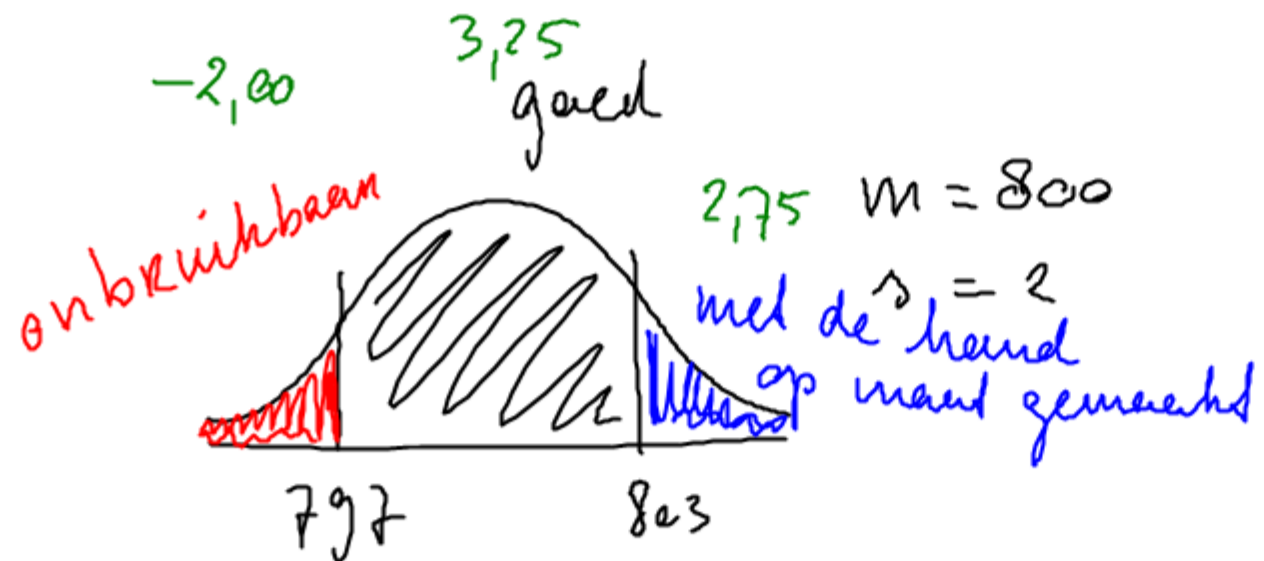


met de vuistregel krijg je 16%

met de GRM

$$\text{Normalcdf}(51, 1E99, 50,6, 0,4) = \dots$$

23



a normalcdf(-1E99, 797, 800, 3) = 0,067 6,7%

b

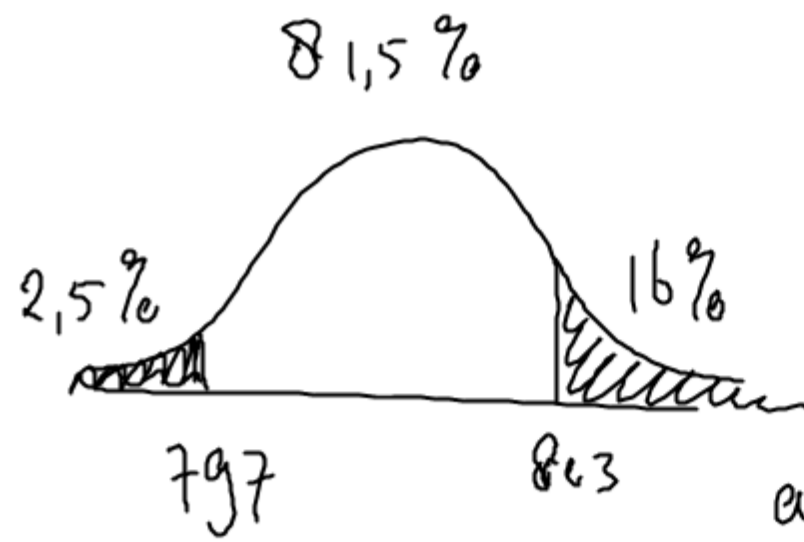
aantal	1000	1072
%	93,3	100

93,3% van ? planken
is 1000 planken

c 1072 planken maken

$$\begin{aligned}
 72 \cdot -2,00 &= -144,- \\
 72 \cdot 2,75 &= 198,- \\
 928 \cdot 3,25 &= \frac{3016,-}{3070,-} +
 \end{aligned}$$

d



$$m = 801$$

$$s = 2$$

$$797 = 801 - 2 \cdot 2$$
$$m - 2 \cdot s$$

$$803 = 801 + 1 \cdot 2$$
$$m + s$$

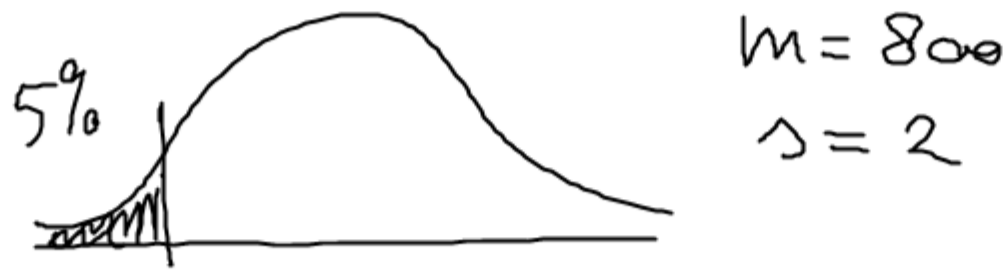
aantal	1000	1026
%	97,5	100

2,5% van 1026 kost 2,00 p.p.

81,5% van 1026 levent 3,75 p.p.

16% van 1026 levent 2,75 p.p.

§ 8.6



hoe lang zijn de 5% kortste planken?

kortere dan 796,7 mm

berekening met GRM:

$$\text{INVNORM}(0.05, 800, 2)$$

27

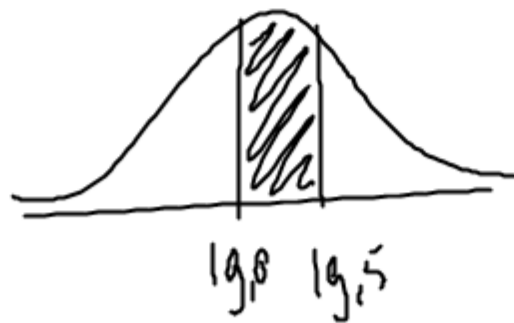
Omtrek cirkel

normaal verdeeld

$$m = 19,15 \text{ cm}$$

$$s = 1,06 \text{ cm}$$

b



$$m = 19,15$$

$$s = 1,06$$

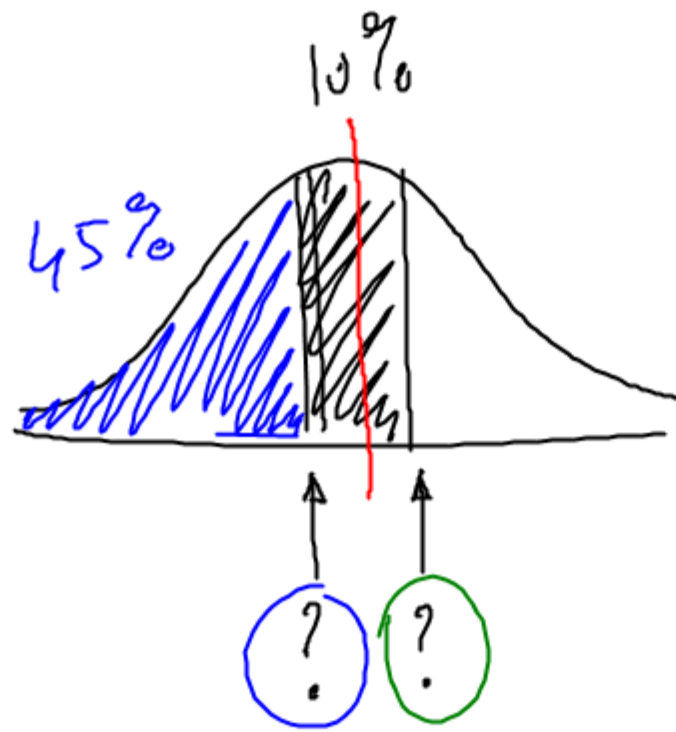
$$\text{normalcdf}(19,0, 19,5, 19,15, 1,06) = \underline{0,18}$$

$$\underline{0,18} \times 182 = 33,4 \text{ dus } 33 \text{ lln}$$

met het niet afgeronde getal doornemen

alleen het eind antwoord afronden

C



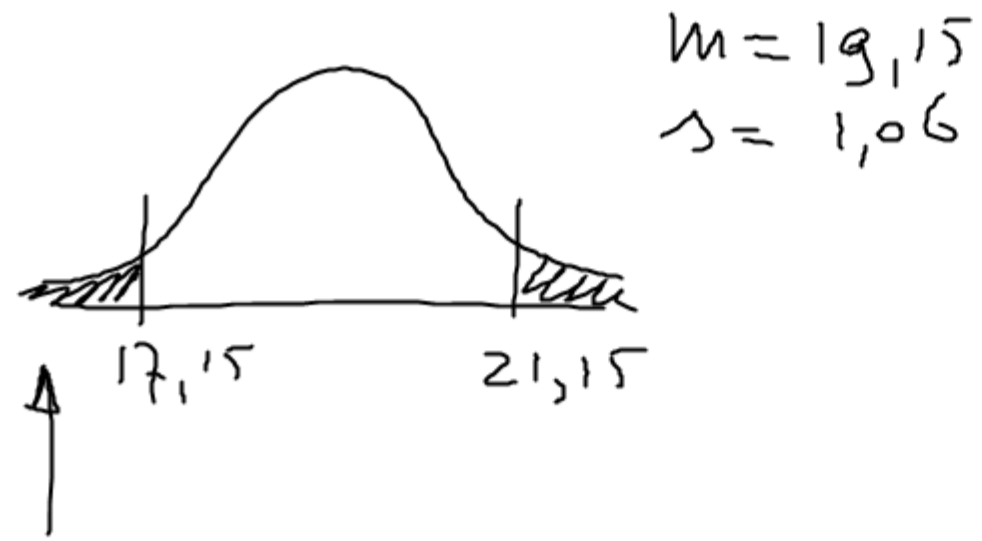
$$\mu = 19,15$$
$$\sigma = 1,06$$

$$\text{INVNORM}(0,45, 19,15, 1,06) = 19,02$$

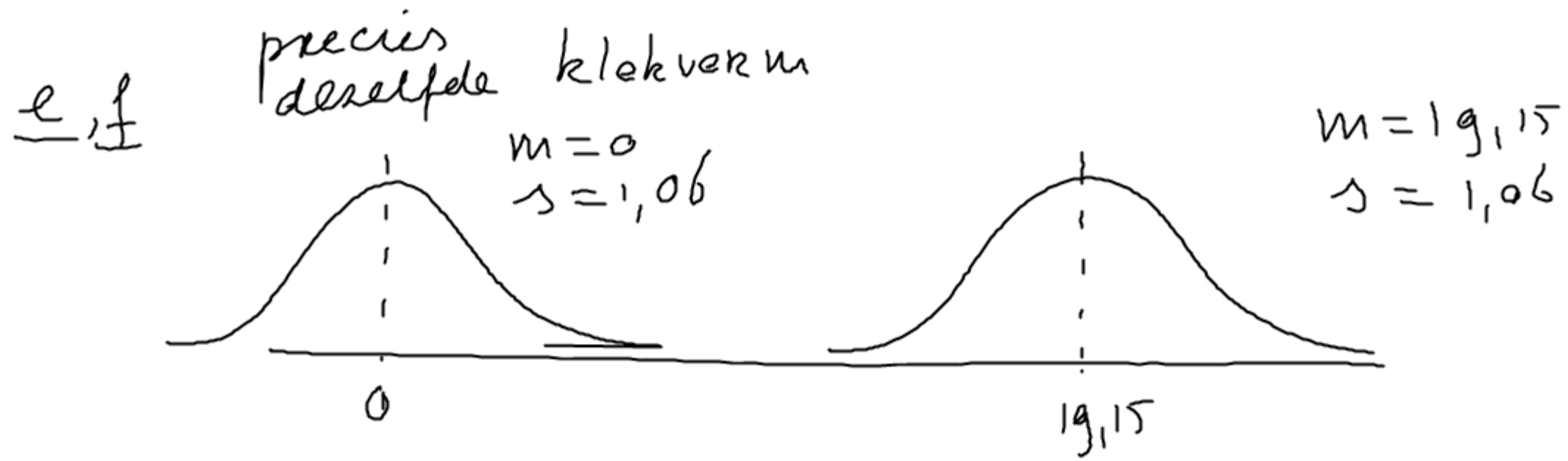
$$\text{INVNORM}(0,55, 19,15, 1,06) = 19,28$$

das fassen de 19,02 en de 19,28 cm

d



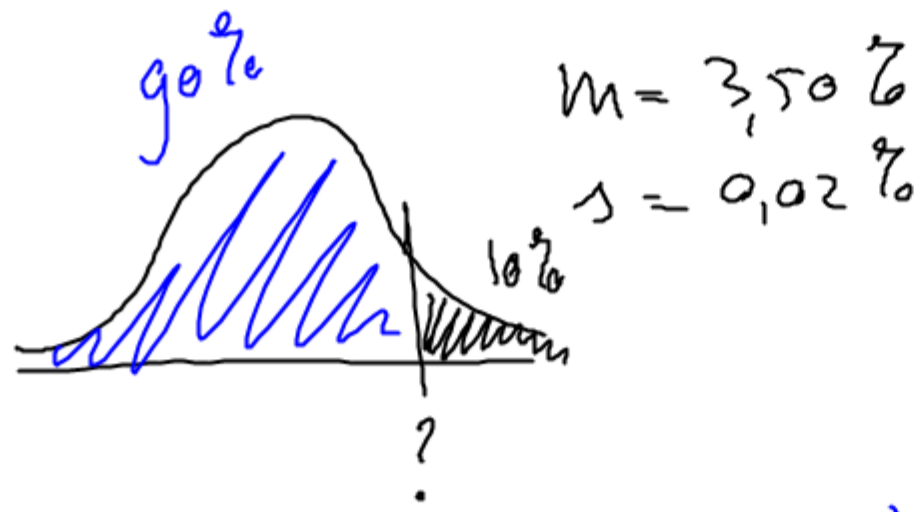
$$2 * \text{normalcdf}(-1E99, 17.15, 19.15, 1.06) = \dots$$



meet kromme : meting van de omtrek

foutenkromme : meting van de omtrek — de omtrek

26



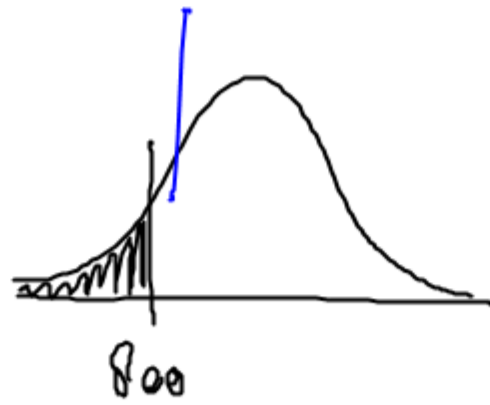
a

$$\text{invnorm}(0.90, 3.50, 0.02) =$$

b, c zelf doen!

§ 8.7

2g



$m = \cancel{850}$
 $s = 38$

normalcdf(-1E99, 800, ~~850~~, 38) = 0,09

9%

ER mag maximaal 1% van de flessen minder dan 800 ml bevatten

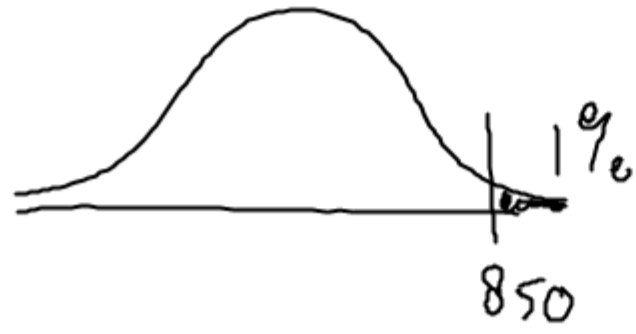
-
- 1^e m groter maken
 - 2^e s kleiner maken

$$y_1 = \text{normalcdf}(-1E99, 800, X, 38)$$

X	y ₁
888	0,01028
88g	0,00959

m instellen op 88g ml

31



$$\mu = ?$$

$$\sigma = 30$$

$$y_1 = \text{InvNorm}(0.99, X, 30)$$

$$= 850$$

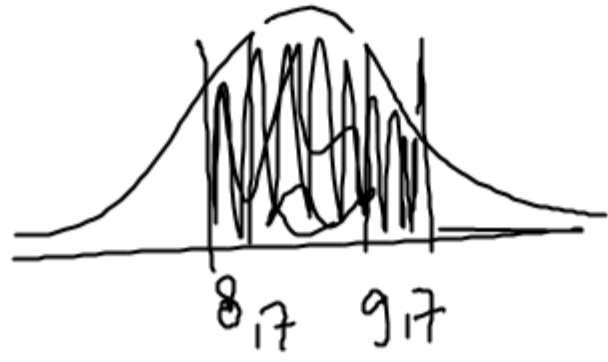
$$y_2 = \text{Normalcdf}(850, 1E99, X, 30)$$

$$= 0.01$$

X	y1	y2
780	849.79	0.00982
781	850.79	0.01072

← das $\mu = 780$

35 a



$$m = 9,2$$
$$s = 0,6$$

$$\text{normalcdf}(8.7, 9.7, 9.2, 0.6) = 0,595$$

$$0,595 \cdot 100 = 59,5$$

60 jareu

35 b



$$\mu = 9,2$$
$$\sigma = 0,6$$

EMZ,

c



$$\mu = 9,2$$
$$\sigma = 0,6$$

$$\text{normalcdf}(10.3, 1E99, 9.2, 0.6) = 0.03$$

das entspricht $0,03 \cdot 100$ ist 3 Jahren / EMZ

36 a

dieptefreq %

[1,33 ; 1,43 >

2

[1,43 ; 1,53 >

8

[1,53 ; 1,63 >

25

[1,63 ; 1,73 >

62

[1,73 ; 1,83 >

65

[1,83 ; 1,93 >

27

[1,93 ; 2,03 >

9

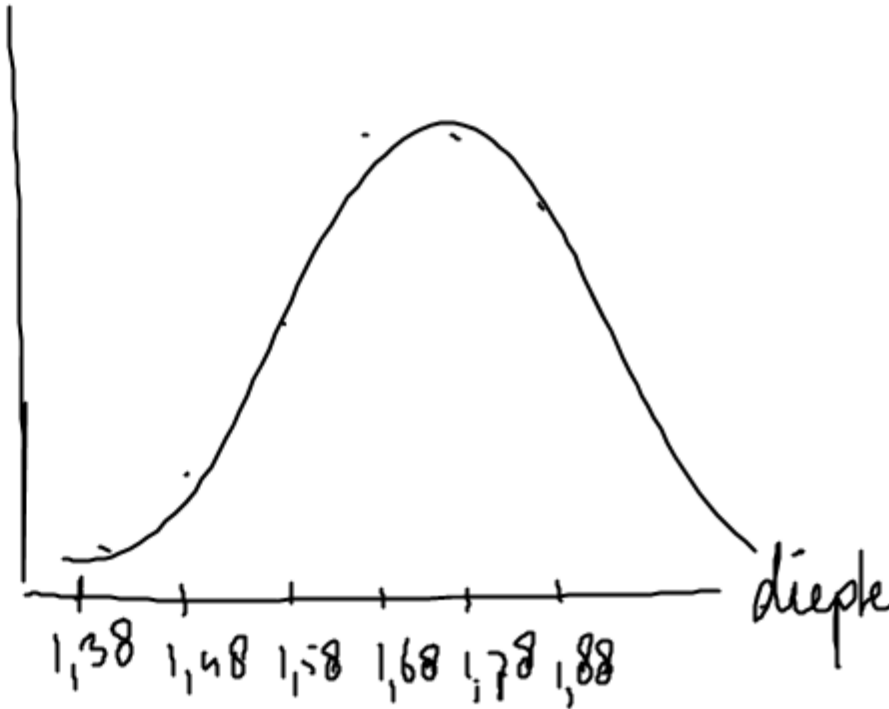
[2,03 ; 2,13 >

1

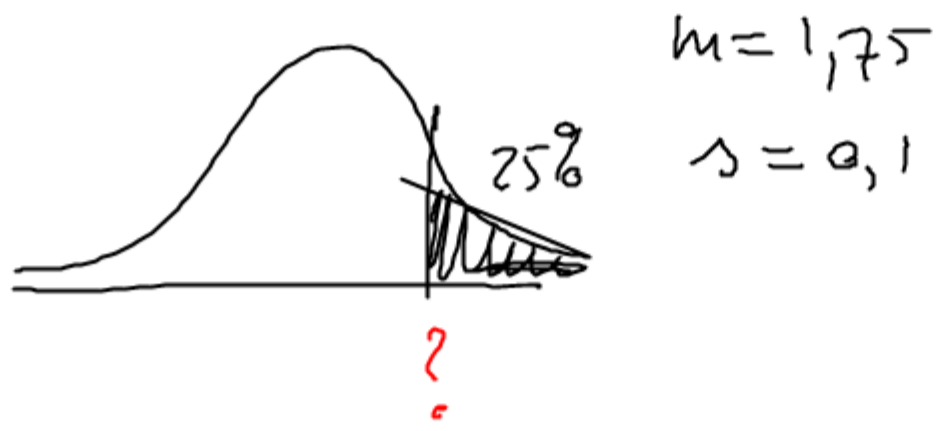
[2,13 ; 2,23 >

1

freq (%)

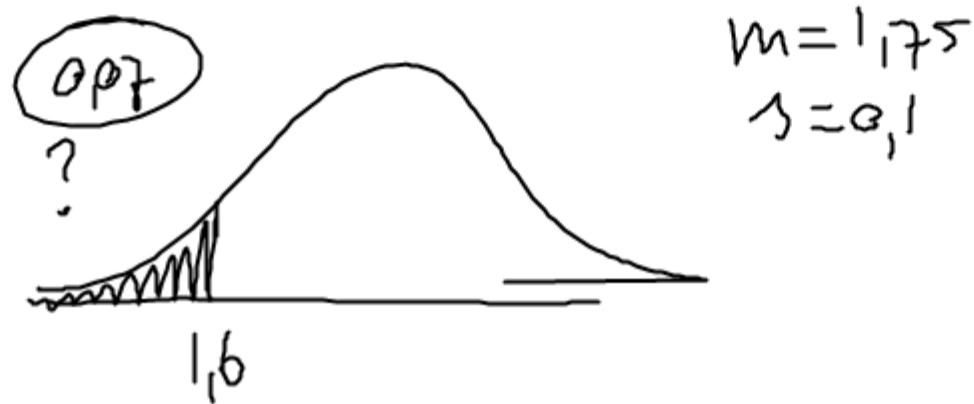


36 d



Invnorm(0.75, 1.75, 0.1)

e



1 van de 4 afgekeurd
3
 $4 \cdot 0,07 \cdot 0,93$

