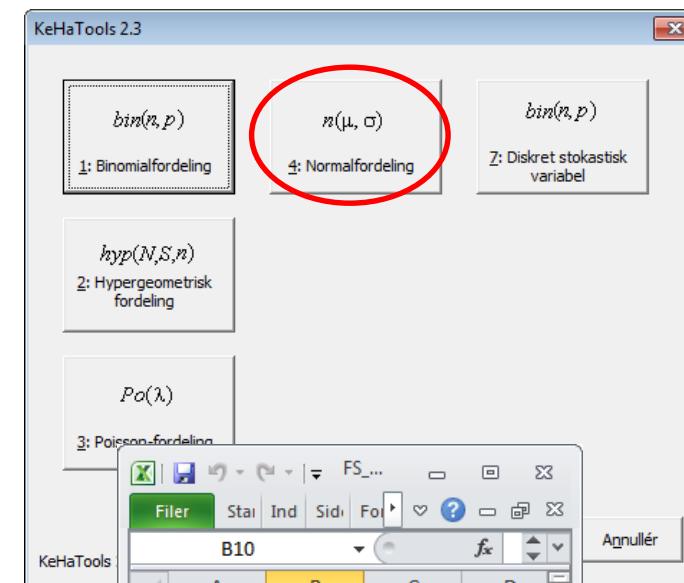
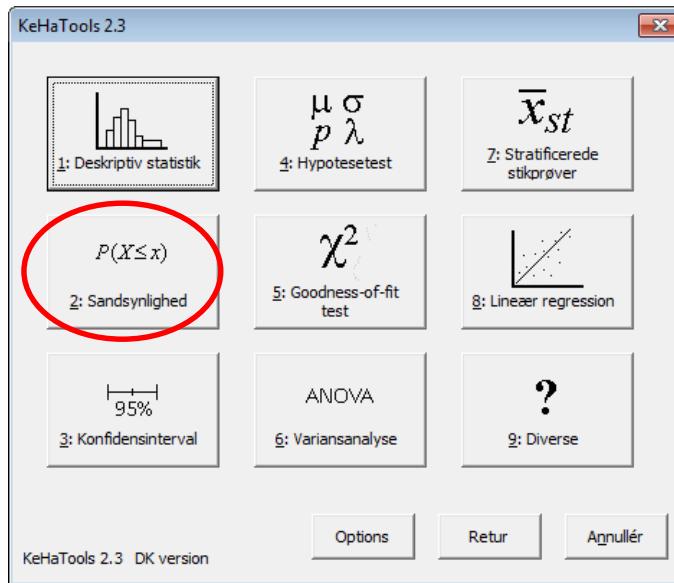


Anvendt Statistik og KeHaTools Kapitel 19: Normalfordelingen

Oversigt

- Eksempel 19.2 beregning i normalford.
- Eksempel 19.3 bestemmelse af μ
- Eksempel 19.4 bestemmelse af σ
- Eksempel 19.7 middelværdi af uafh.
normalfordelte størrelser

Eksempel 19.2



Beregninger i normalfordelingen

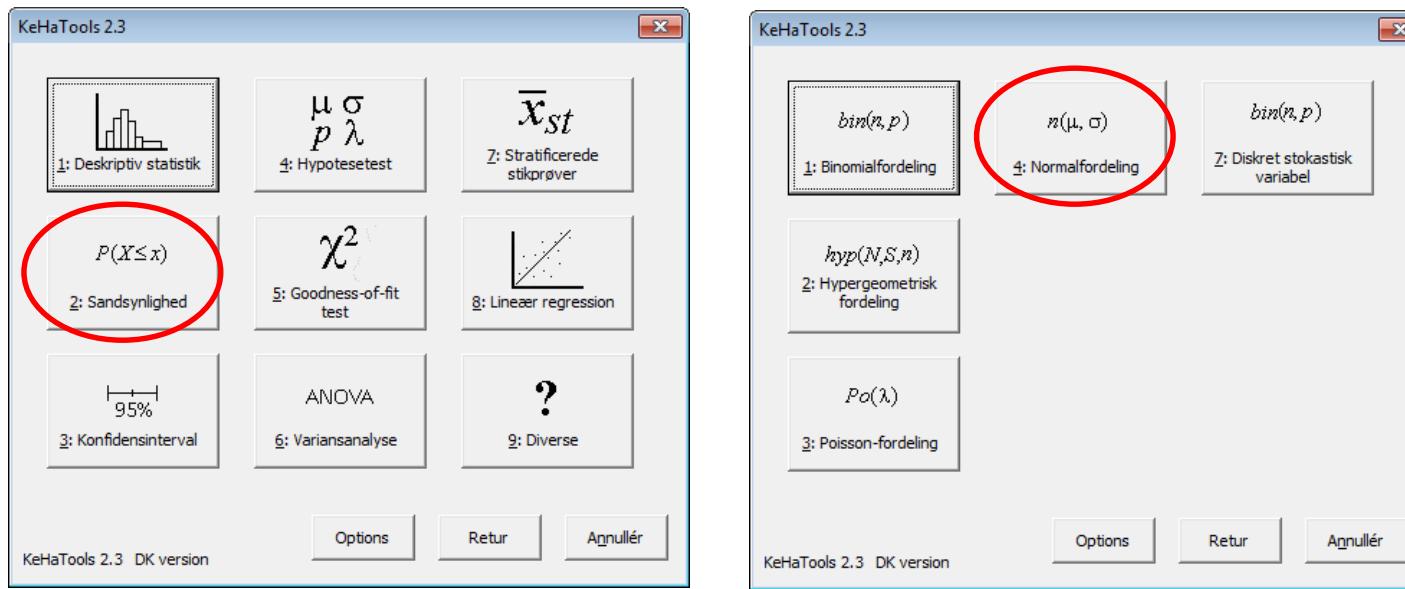
Middelværdi	100	OK
Spredning	15	Annulér
<input type="checkbox"/> Beregn gennemsnit af flere uafhængige normalfordelte variable		
Antal variable		
Nedre grænse	140	
Øvre grænse		

Beregninger i normalfordelingen		
midDELVÆRDI	100	OK
STANDARDA	15	Annulér
<input type="checkbox"/> Beregn gennemsnit af flere uafhængige normalfordelte variable		
ANTAL VARIABLE		
NEDRE GRÆNSE	140	
Beregninger af sandsynligheder		
a =	140	
P(X ≤ a)	0,599017	
P(X ≥ a)	0,00383	
a =	140	
b =	140	
P(a ≤ X ≤ b)	0	

Eksempel 19.3 - I

- Ideen er at beregne en eller anden sandsynlighed med de givne oplysninger og en vilkårlig middelværdi
- og derefter anvende målsøgning til at finde den rette middelværdi

Eksempel 19.3 - II



Beregninger i normalfordelingen

Middelværdi: 500

Spredning: 3

Beregn gennemsnit af flere uafhængige normalfordelte variable

Antal variable: [empty input field]

Nedre grænse: 500

Øvre grænse: [empty input field]

OK

Annulér

Eksempel 19.3 - III

The screenshot shows a Microsoft Excel window titled "FS_Data.xlsx - Microsoft Excel". The ribbon at the top has the "Data" tab selected, which is highlighted with a red circle. Below the ribbon, the "Data" tab contains several groups of tools: "Hent eksterne data", "Forbindelser", "Sorter og filtrer", "Tekst til kolonner", "Fjern dupletter", "Dataanalyse", and "Subtotal". The "Dataanalyse" group is also circled in red. On the far right of the "Data" tab, there is a dropdown menu labeled "What-if-analyse" with a red circle around it. The main worksheet area displays calculations related to normal distribution and probability calculations. Row 15 is currently selected.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Beregninger i normalfordelingen															
2																
3	midDELVÆ	500														
4	Standarda	3														
5																
6	Beregninger af sandsynligheder															
7																
8	a =	500														
9	P(X ≤ a)	0,5														
10	P(X ≥ a)	0,5														
11																
12	a =	500														
13	b =	500														
14	P(a ≤ X ≤ b)	0														
15																
16																
17																

Fanebladet *Data*, menupunktet *What-if-analyse*, undermenuen *Målsøgning*

Eksempel 19.3 - IV

The screenshot shows a Microsoft Excel spreadsheet titled "FS_Data.xlsx M..". The active cell is B15. The formula bar shows "B15". The ribbon tabs include Filer, Stat, Ind, Sidi, For, Dat, C, and a question mark icon.

The spreadsheet contains the following data:

	A	B	C	D	E
1	Beregninger i normalfordelingen				
2					
3		middelvæ	500		
4		Standarda	3		
5					
6	Beregninger af sandsynligheder				
7					
8	a =	500			
9	P(X ≤ a)	0,5			
10	P(X ≥ a)	0,5			
11					
12	a =	500			
13	b =	500			
14	P(a ≤ X ≤ b)	0			
15					
16					

A red arrow points from cell B9 to the "Angiv celle:" field in the "Målsøgning" dialog box. Another red arrow points from cell C9 to the "Ved ændring af celle:" field.

The "Målsøgning" dialog box is displayed:

- Angiv celle: \$B\$9
- Sl. værdi: 0,05
- Ved ændring af celle: \$C\$3

Buttons: OK, Annuler

Eksempel 19.3 - V

The screenshot shows a Microsoft Excel spreadsheet titled "FS_Data.xlsx". The active cell is C3, which contains the value 504,933. The spreadsheet is organized into sections:

- Beregninger i normalfordelingen**:
 - Cell C3: middelværdi 504,9338
 - Cell C4: Standardafvigelse 3
- Beregninger af sandsynligheder**:
 - Cell C8: a = 500
 - Cell C9: P(X ≤ a) 0,050026
 - Cell C10: P(X ≥ a) 0,949974
- Another section**:
 - Cell C12: a = 500
 - Cell C13: b = 500
 - Cell C14: P(a ≤ X ≤ b) 0

The bottom of the screen shows the ribbon tabs "Kapitel 9" and "Kapitel 10", indicating the chapter context.

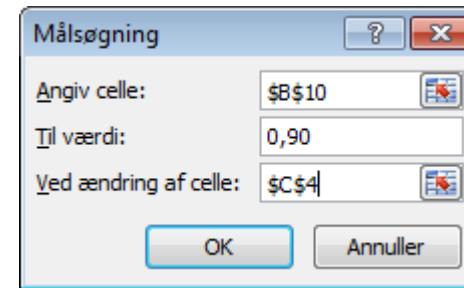
Eksempel 19.4 - I

- Ganske som eksempel 19.3

The screenshot shows an Excel spreadsheet titled "FS_Data.xlsx". The spreadsheet contains the following data:

	A	B	C	D	E
1	Beregninger i normalfordelingen				
2					
3		middelvæ	503		
4		Standarda	7		
5					
6	Beregninger af sandsynligheder				
7					
8	a =		500		
9	P(X ≤ a)		0,334118		
10	P(X ≥ a)		0,665882		
11					
12	a =		500		
13	b =		500		
14	P(a ≤ X ≤ b)		0		
15					

The spreadsheet is located in cell C6. The formula bar shows "fx". The status bar at the bottom indicates "Klar", "100%", and zoom controls.



Eksempel 19.4 - II

The screenshot shows an Excel spreadsheet titled "FS_Data.xlsx". The visible portion of the spreadsheet contains the following data:

	A	B	C	D	E
1	Beregninger i normalfordelingen				
2					
3		middelevæ	503		
4		Standarda	2,342918		
5					
6	Beregninger af sandsynligheder				
7					
8	a =	500			
9	P(X ≤ a)	0,100193			
10	P(X ≥ a)	0,899807			
11					

The formula bar at the top shows "C4" and the value "2,34291". The ribbon tabs "Filer", "Stat", "Ind", "Sid", "For", "Dat", "Gr", and "?" are visible. The status bar at the bottom shows "Kapitel 9" and "Kapitel 1".

Eksempel 19.7 - I

KeHaTools 2.3

1: Deskriptiv statistik 4: Hypotesetest
2: Sandsynlighed 5: Goodness-of-fit test
3: Konfidensinterval 6: Variansanalyse
7: Stratificerede stikprøver 8: Lineær regression
9: Diverse

P(X ≤ x)

KeHaTools 2.3

1: Binomialfordeling 4: Normalfordeling
2: Hypergeometrisk fordeling 5: Poisson-fordeling
3: Diskret stokastisk variabel

bin(n, p) n(μ, σ)
hyp(N, S, n)
Po(λ)

Beregninger i normalfordelingen

Middelværdi: 100 Spredning: 15
Antal variable: 10
Nedre grænse: 120
Øvre grænse:

Beregn gennemsnit af flere uafhængige normalfordelte variable

OK Annuler

Eksempel 19.7 - II

The screenshot shows a Microsoft Excel spreadsheet titled "FS_Data...". The menu bar includes "Filer", "Stai", "Ind", "Sidi", "For", "D", "?", "Dataværktøjer", and "X". The ribbon tabs are "Filer", "Stai", "Ind", "Sidi", "For", "D", and "Dataværktøjer". The status bar at the bottom shows "Kapitel 9", "Kap I", "100%", and zoom controls.

The spreadsheet contains the following data:

	A	B	C	D
1	Beregninger i normalfordelingen			
2	Beregning af middelværdi af flere uafhæng			
3				
4		middelvæ	100	
5		Standarda	15	
6		antal varia	10	
7				
8	Beregninger af sandsynligheder			
9				
10	a =	120		
11	P(X ≤ a)	0,999988		
12	P(X ≥ a)	1,24E-05		
13				
14	a =	120		
15	b =	120		
16	P(a ≤ X ≤ b)	0		
17				