

# Programmering - Test

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Sæt kryds ved *sand* eller *falsk* for hver udtalelse. Det giver +1 point at svare korrekt, -1 point at svare forkert, 0 ikke at svare.

Check/mark either *true* or *false* for each question/statement. +1 point is awarded for a correct answer, -1 point for a wrong answer and 0 points for a wrong answer.

## 1 Eksempel / example

Forhold dig til følgende udtryk  $a = 2 + 2$ :

Consider the following statements  $a = 2 + 2$ :

	Sand True	Falsk False
(1) $a=5$	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(2) $a=4$	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(3) $a=7$	<input type="checkbox"/>	<input type="checkbox"/>

*Eksempel-opgaven kan max give 3 point og her giver den 0 point. +1 point for (1), -1 point for (2) og 0 point for (3).*

*The example-question can maximally award 3 points and here it awards 0 points. +1 point for (1), -1 point for (2) og 0 point for (3).*

## 2 Basic Python

Besvar spørgsmål om følgende kode (Answer questions about the following code):

```
1  # Calculator of averages
2  n = 0
3  s = 0
4  while True:
5      n = n+1
6      userinput = input("Type a number (or 'stop' to stop):")
7      if userinput == 'stop':
8          break
9      x = int(userinput)
10     s = s + x
11 avg = s/n
12 print(f"The average is {avg}")
```

Og følgende eksempel-output (and the following example output):

```
Type a number (or 'stop' to stop):2
Type a number (or 'stop' to stop):3
Type a number (or 'stop' to stop):4
Type a number (or 'stop' to stop):stop
The average is 3.0
```

		Sand True	Falsk False
(4)	Variablen <code>userinput</code> er af typen <i>integer</i> (The variable <code>userinput</code> is of type <i>integer</i> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(5)	Variablen <code>n</code> er af typen <i>integer</i> (The variable <code>n</code> is of type <i>integer</i> )	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(6)	Variablen <code>avg</code> er af typen <i>integer</i> . (The variable <code>avg</code> is of type <i>integer</i> )	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(7)	Programmet crasher hvis brugeren skriver <b>seks</b> i stedet for et tal. (The program crashes if the user types <b>six</b> instead of a number.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(8)	Programmet kan crashes med fejl fra linje 6. (The program can crash with an error from line 6.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(9)	Programmet kan crashes med fejl fra linje 9. (The program can crash with an error from line 9.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(10)	Hvis brugeren indtaster 3 tal og <b>stop</b> som i eksempl-outputtet, vil linje 11 blive udført 4 gange. (If the user types 3 numbers and <b>stop</b> , as in the example output, then line 11 is executed 4 times).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(11)	Hvis linje 5 ændres til <code>##n = n+1</code> vil programmet altid beregne 0 som gennemsnit. (If line 5 is changed to <code>##n = n+1</code> , then the program will always calculate 0 as average.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(12)	Hvis linje 5 ændres til <code>##n = n+1</code> vil programmet crashe. (If line 5 is changed to <code>##n = n+1</code> , then the program will crash.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 3 Pygame

Besvar spørgsmål om følgende kode (Answer questions about the following code):

```
1 import pygame as pg
2 import random
3 screen = pg.display.set_mode((400,400))
4 running = True
5 x = 100
6 y = 300
7 while running:
8     events = pg.event.get()
9     for e in events:
10         if e.type == pg.KEYDOWN:
11             if e.key == pg.K_ESCAPE:
12                 running = False
13
14     x = x - 5
15     if x < 0:
16         x = 500
17
18     screen.fill((255,255,255))
19     pg.draw.circle(screen, (200,0,0), (x, y), 50)
20
21     pg.display.update()
22     time.sleep(0.1)
```

	Sand True	Falsk False
(13) Pygame-spillet har hvid baggrundsfarve (The game has white background color)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(14) Pygame-spillet viser en rød cirkel (The game shows a red circle)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(15) Pygame-spillet viser en blå cirkel (The game shows a blue circle)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(16) Cirklen i spillet bevæger sig fra venstre mod højre hen over skærmen (The circle in the game moves from the left to right across the screen)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(17) Cirklen starter med at være tegnet i nederste venstre hjørne af skærmen (The circle starts out in the lower left corner of the screen)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(18) Der er en eller flere frames hvor cirklen ikke kan ses på skærmen (There is one or more frames where the circle is not visible on screen)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(19) Cirkelns position kan ændres ved at trykke på piletasterne på tastaturet (The position of the circle can be changed by pressing the arrow keys on the keyboard)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 4 Lister / lists

Besvar spørsmål om følgende kode (Answer questions about the following code):

```
1 numbers = [11, 22, 33, 44]
2 print(numbers[0])
3 print(numbers[-1])
4 print(numbers[2])
5 numbers.append(1337)
6 print(len(numbers))
7 for i in range(3):
8     numbers.append(i*10)
9 print(numbers)
```

		Sand True	Falsk False
(20)	Output fra <code>print</code> i linje 2 er 11 (The output from <code>print</code> on line 2 is 11)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(21)	Output fra <code>print</code> i linje 3 er 44 (The output from <code>print</code> on line 3 is 44)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(22)	Output fra <code>print</code> i linje 4 er 44 (The output from <code>print</code> on line 4 is 44)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(23)	Output fra <code>print</code> i linje 6 er 4 (The output from <code>print</code> on line 6 is 4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(24)	Output fra <code>print</code> i linje 9 er [11,22,33,44,1337,0,10,20] (The output from <code>print</code> on line 9 is [11,22,33,44,1337,0,10,20])	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(25)	Output fra <code>print</code> i linje 9 er [11,22,33,44,1337,10,20,30] (The output from <code>print</code> on line 9 is [11,22,33,44,1337,10,20,30])	<input type="checkbox"/>	<input checked="" type="checkbox"/>