

# Facitliste til træningssider 6

## Opg. 1

a.  $x = \frac{\log(11)}{\log(6)}$

b.  $\frac{\log(100)}{\log(10)} = 2$

c.  $\frac{\log(1)}{\log(2)} = 0$

## Opg. 2

a.  $\frac{\log(10)}{\log(0,1)} = -1$

b.  $\frac{\log(1000)}{\log(100)} = \frac{3}{2}$

c.  $\frac{\log(1)}{\log(0,1)} = 0$

## Opg. 3

a.  $\frac{\log(100.000)}{\log(10)} = 5$

b.  $\frac{\log(10)}{\log(100)} = \frac{1}{2}$

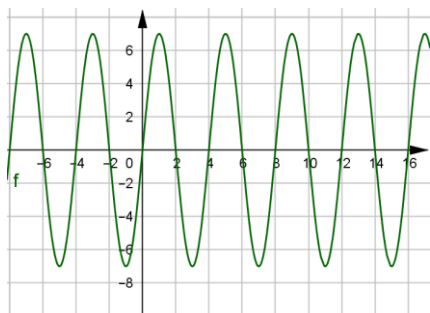
c.  $\frac{\log(100)}{\log(0,1)} = -2$

Opg. 4

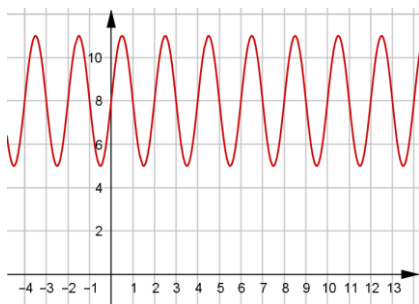
- a.  $A = 2$  ,  $k = 12$  ,  $T = \frac{2\pi}{3} \approx 2,09$
- b.  $A = 10$  ,  $k = -5$  ,  $T = \frac{2\pi}{0,012} \approx 523$
- c.  $A = 0,1$  ,  $k = 3$  ,  $T = \frac{2\pi}{7} \approx 0,90$
- d.  $A = 4,17$  ,  $k = -4,2$  ,  $T = \frac{2\pi}{0,0312} \approx 201$

Opg. 5

a.  $f(x) = 7 \cdot \sin\left(\frac{\pi}{2}x\right)$

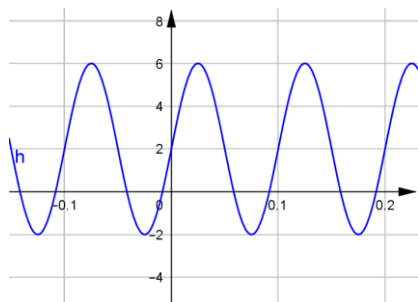


b.  $f(x) = 3 \cdot \sin(\pi \cdot x) + 8$

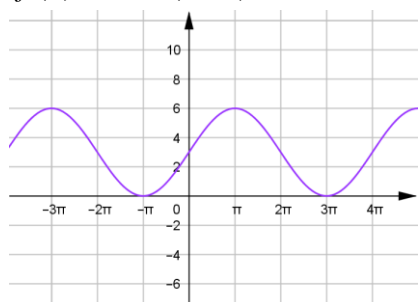


c.  $f(x) = 4 \cdot \sin(20\pi \cdot x) + 2$

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d.  $f(x) = 3 \cdot \sin(0,5x) + 3$



### Opg. 6

- a.  $(x^3)' = 3x^{3-1} = 3x^2$
- b.  $(0,25e^{4x})' = 4 \cdot 0,25 \cdot e^{4x} = e^{4x}$
- c.  $(7x^2 - 6x + 19)' = 2 \cdot 7x^{2-1} - 6x^{1-1} + 0 = 14x - 6$

### Opg. 7

- a.  $(0,01x^2 - x)' = 2 \cdot 0,01x^{2-1} - 1x^{1-1} = 0,02x - 1$
- b.  $(5x^3)' = 3 \cdot 5x^{3-1} = 15x^2$
- c.  $\left(\frac{1}{\ln(5)} \cdot 5^x\right)' = \frac{1}{\ln(5)} \cdot (5^x)' = \frac{1}{\ln(5)} \cdot 5^x \cdot \ln(5) = \frac{\ln(5)}{\ln(5)} \cdot 5^x = 5^x$

**Opg. 8**

- a. Nej
- b. Nej
- c. Ja

**Opg. 9**

- a.  $x^2 + 3x + k$  , hvor  $k$  er en reel konstant
- b.  $\frac{1}{5}x^5 + \frac{1}{2}x^2 + k$  , hvor  $k$  er en reel konstant
- c.  $x^3 + k$  , hvor  $k$  er en reel konstant
- d.  $\frac{1}{8}x^8 + k$  , hvor  $k$  er en reel konstant
- e.  $\sin(x) + k$  , hvor  $k$  er en reel konstant

**Opg. 10**

- a. 4
- b. -2
- c. 5
- d. 1000

**Opg. 11**

- a. 3
- b. -2
- c. 5
- d. -4

**Opg. 12**

- a.  $y$
- b.  $-21$
- c.  $y$
- d.  $10z$

**Opg. 13**

- a. 4
- b.  $-12$
- c. 1
- d. 0

**Opg. 14**

- a.  $\mathbb{Z}$ , de hele tal
- b.  $\mathbb{Q}$ , de rationale tal
- c.  $\mathbb{Q}$ , de rationale tal
- d.  $\mathbb{N}$ , de naturlige tal

**Opg. 15**

- a.  $\mathbb{Q}$ , de rationale tal
- b.  $\mathbb{Q}$ , de rationale tal
- c.  $\mathbb{N}$ , de naturlige tal
- d.  $\mathbb{R}$ , de reelle tal

**Opg. 16**

- a. Ingen facit

**Opg. 17**

- a.  $a$   
b.  $a$

**Opg. 18**

a.  $\left(a^{\frac{1}{2}}\right)^2 = a^{\frac{1}{2} \cdot 2} = a^1 = a$

- b. Ingen facit

**Opg. 19**

- a. 7  
b. 7  
c. 9