Oefenzitting 1

* 1. –**i**
  2. +**j**
  3. –**j**
  4. -1
  5. 8cos(45°)
  6. 8sin(45°)

1. –(7.5**j**+11**k**)\*10-3 N/cm
2. -2πIB r2/((r2+d2)1/2)**k**
3. Evenwicht wanneer mb = ama/b
   1. Zie oefenzitting
   2. **P** = 4QL**u** met **u**=-cos(ϑ)**k** + sin(ϑ)**j**
   3. **τg** = -2Lmg sin(ϑ)**i, τe** = 4QLE cos(ϑ)**i**
   4. Ug = -2mgL cos(ϑ ), Ue = -4QLE sin(ϑ)
   5. Tan(ϑ) = 2QE/mg
   6. Zie e)

Oefenzitting 2

1. m = 4 amu
2. I = 841 A
   1. **τ** = -9.98 m2AT**j**
   2. α = 90° (stabiel) of -90° (labiel)
3. tan(ϑ) = 4.0°
   1. Negatief
   2. P = qB(d2+l2)/(2d)

Oefenzitting 3

* 1. Er is 1 oplossing
  2. Afstand tussen 1.5A draad en nieuwe is 12 cm, I = 2.4 A naar beneden
  3. **B** = μ0I**i**(n2-n1)
  4. **B** = μ0I**i**n2
  5. **B** = 0
  6. B = μ0Ir/(R122π)
  7. B = μ0I/(2πr)
  8. B = μ0I/(2πr) \* (R32-r2)/(R32-R22)
  9. B = 0
  10. B = μ0ca3/3
  11. B = μ0cz3/3

1. B = μ0cR5/(5r2)

Oefenzitting 4

1. **B** =μ0I/12 \* (1/a-1/b) **k**
2. B = 2μ0I/(4πR) + μ0I/(4R) in het blad
3. **B** = μ0Id/(4πy(d2+y2)1/2)
4. B = μ0I51/2/(2πa)
   1. **F** = -I2a2μ0/(2πd(d+a))**j**
   2. **F** = μ0I2/(2π) \* (a/d-2/(31/2)\*ln(1+31/2a/(2d)))**j**

Oefenzitting 5

1. B = 0.2 T
   1. Φ = 7.4 \* 10-6 Wb
   2. Φ = 2.3 \* 10-6 Wb
   3. Φ = - πR2B cos(ϑ)
   4. Φ = πR2B cos(ϑ)
   5. **F** = (NBw)2v/R (-**i)**
   6. Eenmaal volledig in magneetveld, geen magnetische kracht
   7. **F** = (NBw)2v/R (-**i)**
2. I = 0.01 A (stroom loopt in wijzerzin door spoel 1 en tegenwijzerzin door spoel 2)

Oefenzitting 6

* 1. I1 = 3.5 A, I2 = 1.4 A
  2. P = 34 W
  3. F = 4.3 N naar links
  4. P = 34 W

1. I3 = 1.5 \* 10-4 A
2. ε = 1.6 V
   1. F = -8 \* 10-21 N
   2. T = 1.33 s
3. I2 = 0.86 A, I3 = 0.92 A

Oefenzitting 7

1. M = 1.7 mH
   1. Τ = 0.002 s
   2. I = 1.5 A
   3. I = 0.18 A
   4. T = 0.003 s
2. U = μ0I2/(16π)
3. I3 = 0.5 A\*(1+e-10 Hz t), I1 = 1.5 A - 0.25 A\*e-10 Hz t
   1. L = L1+L2
   2. L = L1+L2+2M
   3. 1/L = 1/L1 + 1/L2
   4. L = M2-L1L2/(2M-L1-L2)

Oefenzitting 8

* 1. Ω = 503 Hz
  2. Q = 12 \* 10-6 C
  3. I = 0.04 A
  4. U = 72 \* 10-6 J
  5. Zie opgave
  6. Zie opgave

1. L = 0.2 H, C = 1.3 \* 10-7 F
2. IRLC = 19.3 mA
3. U = 0.24 J

Oefenzitting 9

* 1. I = 3.2 A
  2. Φ = -6.4°
  3. VR = 478 V en loopt gelijk met stroom
  4. VC = 386 V en loopt 90° achter op stroom
  5. VL = 332 V en loopt 90° voor op stroom
  6. Zie oefenzitting
  7. P = 760 W
  8. F = 712 Hz
  9. P = 771 W
  10. I = 5.4 A
  11. Φ = 25.2°
  12. C = 281 μF
  13. V = 109 V

1. Xc = 3R
2. U = 0.24 J

Oefenzitting 10

1. ΔK = -6.9 \* 10-20 J
   1. B(x) = μ0NIR2/(2(R2+x2)3/2) + μ0NIR2/(2(R2+(x-R)2)3/2)
   2. dB/dx(x=0.5R) = 0, d2B/dx2(x=0.5R) = 0
   3. B(x=0.5R) = 4.5 mT
   4. ε = μ0Iv/(2π) ln(b+a/b)
   5. de stroom verandert van richting, de grootte van het emf blijft dezelfde
   6. A = 1/((4π2f2C2R2+1)1/2)
   7. A = 2πfCR/((4π2f2C2R2+1)1/2)