

4.5 a) $P = 1600 \text{ MW}$

$x = 10 \frac{\text{MW}}{\text{km}^2}$

give-ale: $A = \frac{P}{x} = \frac{1600 \text{ MW}}{10 \frac{\text{MW}}{\text{km}^2}} = 160 \text{ km}^2$

b) $y^2 = A = 160 \text{ km}^2 \quad \sqrt{\quad} \quad (\Rightarrow) \quad y = \pm \sqrt{160 \text{ km}^2} \approx 12,649 \text{ km}$

$\square y$
 y

$\approx 13 \text{ km}$

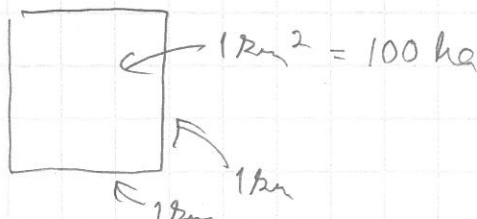
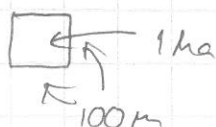
6. Kestävä kehitys

6.6

5.14 a) 1 paneeli: $\frac{750 \text{ MWh}}{2400} \approx 0,3125 \text{ MWh} \approx 310 \text{ kWh}$

b) aurinkopaneelit: $\frac{87 \text{ TWh}}{750 \text{ MWh}} = \frac{87 \cdot 10^{12} \text{ Wh}}{750 \cdot 10^6 \text{ Wh}} \approx 116\,000 \approx 120\,000$

c) osuus: $\frac{116\,000 \cdot 2,4 \text{ ha}}{338\,000 \text{ km}^2} = \frac{116\,000 \cdot 2,4 \text{ ha}}{338\,000 \cdot 100 \text{ ha}} \approx 0,008237$
 $\approx 0,8\%$



d) omerotilatoja: $\frac{750 \text{ MWh}}{15\,000 \text{ kWh}} = \frac{750 \cdot 10^6}{15\,000 \cdot 10^3} = 50$

Sähkön hinta

$1 \text{ kWh} = 1 \cdot 1000 \cdot W \cdot 60 \cdot 60 \text{ s} = 3\,600\,000 \text{ J} = 3,6 \text{ MJ}$

$W \text{ s} = \frac{J}{\text{s}} \cdot \text{s}$

sähköenergian hinta: $0,10 \text{ €/kWh} = 0,60 \frac{\text{€}}{\text{kWh}}$

Esim. Sähkölamppu on merkintä 60 W. Kuinka paljon lampun käyttö maksaa vuorokaudessa?

Ratk. $P = 60 \text{ W}$

$t = 7,3 \text{ h}$ (olet. 3 h/veikko)