

11. $P = 920W$
 $U = 230V$
 $I = \frac{P}{U} = \frac{920W}{230V} = \underline{4,0A}$

12. $P = 8W$
 $E = 1000Wh$
 $t = \frac{E}{P} = \frac{1000Wh}{8W} = 125h$

13. $U = 3V$
 $I = 0,2A$
 $P = U \cdot I = 3V \cdot 0,2A = 0,6W$
 $0,6W = 0,0006kW$

14. $P = 60W = 0,06kW$
 $t = 5h$
 $E = P \cdot t = 0,06kW \cdot 5h = 0,3kWh$

$0,3kWh \cdot 0,12\text{€} = 0,036\text{€} \approx 4\text{sent}$

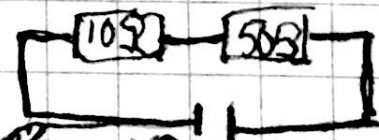
15. $P = 7kW$
 $t = 2h$
 $E = P \cdot t = 7kW \cdot 2h = 14kWh$
 $14kWh \cdot 0,12\text{€}/kWh = 1,68\text{€}$

16. a) $U = 4,5V + 4,5V = 9V$
 b) $U = 4,5V$

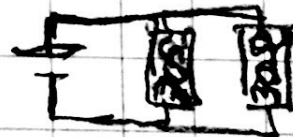
17. $U = 230V$
 $R = 10\Omega$
 $I = \frac{U}{R} = \frac{230V}{10\Omega} = 23A$ ei kestä

18. $P = 3000W$
 $U = 230V$
 $I = \frac{P}{U} = \frac{3000W}{230V} = 13,04 \approx 13A$
 16A sulakeeseen
 $P = 7600W$
 $U = 230V$
 $I = \frac{P}{U} = \frac{7600W}{230V} = 33,04 \approx 33A$
 ei samaan sulakeeseen!

19. $R = 10\Omega + 40\Omega = 50\Omega$



20. $\frac{1}{R} = \frac{1}{30\Omega} + \frac{1}{70\Omega} = \frac{1}{R} = \frac{7}{210\Omega} + \frac{3}{210\Omega} = \frac{10}{210\Omega}$
 $R = \frac{210\Omega}{10} = \underline{21\Omega}$



21. $\frac{1}{R_1} = \frac{1}{20\Omega} + \frac{1}{60\Omega} + \frac{1}{60\Omega} + \frac{1}{60\Omega} = \frac{3}{60\Omega} + \frac{1}{60\Omega} = \frac{4}{60\Omega}$

$R_1 = \frac{60\Omega}{4} = 15\Omega$

$R_{koe} = 15\Omega + 30\Omega = 45\Omega$

