① MHR = 226 − age

= 226 − 26 = 200

② MHR = 220 − age

∴ 173 = 220 − age

age = 47

③ 36 b/40 s = 54 b/min

= 3240 b/h

∴ in 7.5 hours, 3240 × 7.5 = 24300 beats.

④ 1 calorie = 4.184 kJ

⑤ a) 6 270 kJ = 6 270 000 J

b) 12 MJ = 12 000 000 J

c) 920 calories = 3 849.28 kJ

d) 2395 kJ = 2.395 MJ

e) 450 kJ = 107 calories

f) 1.1 MJ = 1100 kJ = 262.9 calories.

⑥ lunch (in kJ) = 1272 + 1000 + 525

= 2797 kJ

$\therefore \% = \frac{2797}{8700} \times 100 = 32.1\%$

⑦ 30 min = 1375 kj ⟶ 2510 − 1375 = 1135

$\frac{1135}{1375} \times 100 = 82.5\%$

$\frac{30}{\quad} \times 182.5\% = 54.75 \text{ min}$

⑧

microwatt (MW)	$1 \text{ MW} = \frac{1}{1\,000\,000} \text{ W} = 10^{-6} \text{ W}$
milliwatt (mW)	$1 \text{ mW} = \frac{1}{1000} \text{ W} = 10^{-3} \text{ W}$
watt (W)	1 W = 1000 mW = 1 000 000 μW
kilowatt (kW)	1 kW = 1000 W
megawatt (MW)	1 MW = 1000 kW = 1 000 000 W or 10^6 W
gigawatt (GW)	1 GW = 1 000 MW = 1 000 000 000 W or 10^9 W

⑨ a) 6540 W

6540 ÷ 1000 = 6.54 kW

b) 820 000 MW

820 000 × 1000 000 = 8.2×10^{11} W

c) 165 200 GW

165 200 × 1000 = 165 200 000 MW

165 200 000 × 1000 = 1.652×10^{11} kW

⑩ a) 2472 × 43% = 1062.96 kwh

b) (i) 1062.96 × $0.17923

= $190.51

(ii) 2472 × 57% = 1409.04 kwh

1409.04 × $0.52496

= $739.69

c) $739.69 ÷ 91 = $8.13.

⑪ 1250 × 2 = 2500 kwH = 2.5 kwh

30 min each fortnigh, so therefor 13 hours a year.

~~2500 wh~~

2.5 × 13 = 32.5 kwh

32.5 × $0.328735 = $10.68

⑫ X

⑬ 7250 kwh × 10% = 725 kwh

725 × 0.343271 = $248.46