

1.

$$U = 230 \text{ V}$$

$$I = 2,5 \text{ A}$$

$$\underline{P_{ab} = 300 \text{ W}}$$

$$\eta = 52 \%$$

$$P_{zu} = U * I$$

$$\underline{P_{zu} = 575 \text{ W}}$$

$$\eta = \frac{P_{ab}}{P_{zu}} \times 100$$

$$\underline{\eta = 0,52 = 52 \%}$$

2.

$$m = 130 \text{ t}$$

$$t = 1 \text{ h}$$

$$s = 2,8 \text{ m}$$

$$\underline{P_{zu} = 1,3 \text{ kW}}$$

$$P_{ab} = 1011,11 \text{ W}$$

$$\eta = 77 \%$$

$$F = m * g$$

$$\underline{F = 1\,300\,000 \text{ N}}$$

$$W = F * s$$

$$\underline{W = 3\,640\,000 \text{ Nm} = 3\,640\,000 \text{ Ws}}$$

$$\eta = \frac{P_{ab}}{P_{zu}} \times 100$$

$$\underline{\eta = 0,77 = 77 \%}$$

$$P = \frac{W}{t}$$

$$\underline{P = 1011,11 \text{ W}}$$

3.

$$s = 15 \text{ m}$$

$$m = 3,5 \text{ m}^3 \rightarrow 3500 \text{ kg}$$

$$t = 1 \text{ s}$$

$$\underline{\eta = 90 \% \rightarrow 0,9}$$

$$P_{ab} = 472,5 \text{ kW}$$

$$F = m * g$$

$$\underline{F = 35000 \text{ N}}$$

$$W = F * s$$

$$\underline{W = 525000 \text{ Ws}}$$

$$P = \frac{W}{t}$$

$$\underline{P = 525 \text{ kW}}$$

$$P_{ab} = P_{zu} * \eta$$

$$\underline{P_{ab} = 472,5 \text{ kW}}$$

4.

$$m = 720 \text{ l} \rightarrow 720 \text{ kg}$$

$$s = 15 \text{ m}$$

$$t = 1 \text{ min} \rightarrow 60 \text{ s}$$

$$\underline{\eta = 80 \% \rightarrow 0,8}$$

$$P_{zu} = 2,25 \text{ kW}$$

$$F = m * g$$

$$\underline{F = 7200 \text{ N}}$$

$$W = F * s$$

$$\underline{W = 108000 \text{ Ws}}$$

$$P = \frac{W}{t}$$

$$\underline{P = 1,8 \text{ kW}}$$

$$P_{zu} = \frac{P_{ab}}{\eta}$$

$$\underline{P_{zu} = 2,25 \text{ kW}}$$

5.

$$\eta = 40 \% \rightarrow 0,4$$

$$\underline{P_{ab} = 750 \text{ MW}}$$

$$P_{zu} = 1875 \text{ MW}$$

$$P_{zu} = \frac{P_{ab}}{\eta}$$

$$\underline{P_{zu} = 1875 \text{ MW}}$$