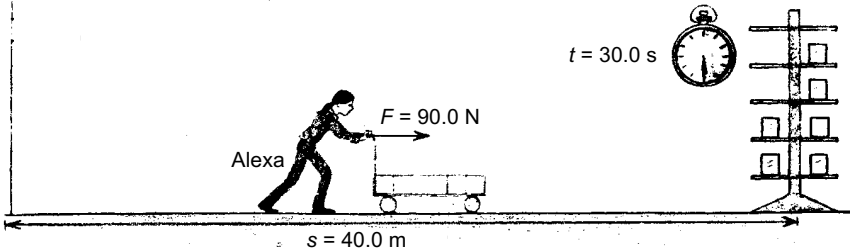


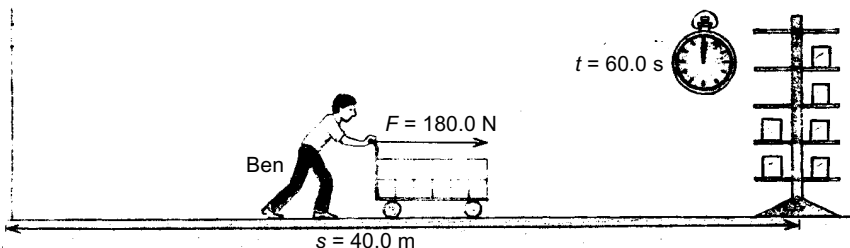
Words of wisdom: «Work fast and your power shall be great!»

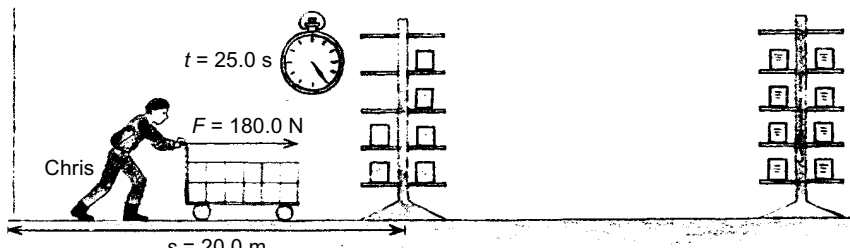
1. Complete the following sentences (with *smaller* / *greater*):

- «The greater the amount of time is needed for a certain amount of work, the the power.»
- «The greater the amount of work is done during a certain amount of time, the the power.»

2. Alexa, Ben and Chris are filling up shelves at the supermarket. They are pushing carts across the floor.

a)  What's the work done on the cart by Alexa?
What's the power?

b)  What's the work done on the cart by Ben?
What's the power?

c)  What's the work done on the cart by Chris?
What's the power?

3. Dan ($m = 45.7 \text{ kg}$) is climbing a mountain of 607 m height, which takes him an hour (1.00h).

- Describe the situation in the language of physics. Use «..... is doing work on"»
- How much work is done?
- What is the power?

4. The car's engine is accelerating a car ($m = 1.20 \text{ t}$) from 0 to $100 \frac{\text{km}}{\text{h}}$ within 10.0 s.

- Describe the situation in the language of physics. Use «..... is doing work on"»
- Calculate the work done.
- What is the power?

5.



Ken is charging his toy pistol gun. He's compressing the spring ($k = 4.5 \frac{\text{N}}{\text{cm}}$) by 2.4 cm, pushing the dart in place within 0.20 s.

- Describe the situation in in the language of physics. Use «.....» is doing work on
- Calculate the work done.
- What is the power?

6. An LED light bulb of 12.0 W is giving light for an hour (1.00 h).
What's the work done?

7. Meghan ($m = 48.0 \text{ kg}$, $P = 320.0 \text{ W}$) is running up the stairs, up to the third floor ($h = 8.0 \text{ m}$).
How long does this take her?

8. A horse ($P = 0.500 \text{ kW}$) is pulling a wagon applying a force of 0.200 kN during one hour (1.00h).
What is the distance covered?

9. A snail ($m = 19 \text{ g}$) is crawling at constant velocity ($v = 3.00 \frac{\text{m}}{\text{h}}$) across a glass table of 2.48 m length. The work done is 360.7 mJ.

- How much time does it take the snail to cross the table?
- Calculate the snail's power.
- What is the coefficient of kinetic friction μ_k between the snail and the glass?

Lösungen:

- | | | |
|-------------------|----------------------|----------|
| 2. a) 120 W | b) 120 W | c) 144 W |
| 3. b) 272 kJ | c) 75.6 W | |
| 4. b) 463 kJ | c) 46.3 kW | |
| 5. b) 0.13 J | c) 0.65 W | |
| 6. 43.2 kJ | | |
| 7. 12 s | | |
| 8. 9.00 km | | |
| 9. a) 49 min 36 s | b) 121 μW | c) 0.78 |