Train Side View Drawing: Wheels, Cars, and Proportions

Original tasks 1, 2 / independent work

Task 1

A train has three cars. Each car has two wheels of diameter 3 cm. Wheel centers within a car are 4 cm apart. The gap between cars is 1.5 cm. Each car length equals wheel spacing plus one wheel diameter. Find the total train length from the left edge of the first car to the right edge of the third car.

Task 2

A two-car train uses wheels of diameter 2.5 cm. Body height is two wheel diameters. What is the body height in centimeters? If the body bottom sits 0.5 cm above the wheel tops, what is the total height from baseline to body top?

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Original tasks 3, 4 / independent work

Task 3

You draw a car with wheel centers 6 cm apart and wheel diameter 2 cm. You want the car length to be wheel spacing plus one wheel diameter. Where should the left and right car edges be relative to the left wheel center if the left edge is half a wheel diameter left of the left wheel center?

Task 4

A train has two cars with equal wheel spacing. Car one has two wheels of diameter 2 cm and car two has two wheels of diameter 3 cm. Wheel centers within each car are 5 cm apart. Body height equals two wheel diameters for each car. Find the difference in body heights and the total length if each car length equals wheel spacing plus one wheel diameter and the gap is 1 cm.