Solutions to Exercise 1: Ratios, Rates, and Units

How long will it take to get to the Moon?

Problem 1: How many days would it take for a bus or a car to get to the Moon? Round your answer to the nearest whole number.

Measurements and formulas:

Approximate distance the Orion spacecraft will travel to the Moon: 250,000 miles
Speed of the car/bus: 60 miles per hour
Hours in a day: 24

Solution:

Hours to the Moon at 60 mph: 250,000 miles $\cdot \frac{1 \text{ hour}}{60 \text{ miles}}$ = 4,166.666 hours

Days to the Moon at 60 mph: 4,166.66 hours $\cdot \frac{1 \text{ day}}{24 \text{ hours}}$ = 173.611 days ≈ 174 days

Final solution: It would take about 174 days to drive to the Moon. That's about 6 months!

Problem 2: How many days would it take to walk to the Moon? How many years? Round the number of days to the nearest whole number and the number of years to the nearest tenth.

Measurements and formulas:

Approximate distance Orion will travel to the Moon: 250,000 miles
Average walking speed: 3 miles per hour
Hours in a day: 24
Days in a year: 365

Solution:

Hours to the Moon at 3 mph: 250,000 miles $\cdot \frac{1 \text{ hour}}{3 \text{ miles}}$ = 83,333.333 hours

Days to the Moon at 3 mph: 83,333.333 hours $\cdot \frac{1 \text{ day}}{24 \text{ hours}}$ = 3,472.222 days ≈ 3,472 days

Years to the Moon at 3 mph: 3,472.222 days $\cdot \frac{1 \text{ year}}{365 \text{ days}}$ = 9.513 years ≈ 9.5 years

Final solution: It would take about 3,472 days to walk to the Moon, which is about 9.5 years.