

National Science Day maths for CBSE Class 9 and 10: answers

CBSE Math Revision · CBSE Class 9 and 10 · Teacher answers and notes

No calculator. Every answer works out exactly; each question gives the values to use.

Teacher notes

- Every physical value is given in the question as a rounded value to use, so no prior science knowledge is needed.
- In task B, remind students to use the same units on both sides before writing a ratio.
- The echo question in the extension is the classic slip: the sound travels there and back.

Starter

1. **3×10^8**
 - Move the decimal point 8 places: 3×10^8 .
2. **1×10^6**
 - $2.5 \times 4 = 10$ and $10^3 \times 10^2 = 10^5$.
 - $10 \times 10^5 = 10^6$
3. **60 km/h**
 - $150 \div 2.5 = 60$
4. **$2^6 = 64$**
 - $(2^3)^2 = 2^6 = 64$

Task A: Light and standard form

- a. **1.8×10^{10} m**
 - $3 \times 10^8 \times 60 = 180 \times 10^8 = 1.8 \times 10^{10}$
- b. **500 s**
 - $(1.5 \times 10^{11}) \div (3 \times 10^8) = 0.5 \times 10^3 = 500$
- c. **8 minutes 20 seconds**
 - $500 = 8 \times 60 + 20$

Task B: Pinhole cameras and shadows

- a. **4 cm**
 - The triangles are similar: image height $\div 20$ cm = 2 m $\div 10$ m = $1/5$.
 - Image height = $20 \div 5 = 4$ cm
- b. **30 m**
 - Distance $\div 15$ cm = 6 m $\div 3$ cm = 600 cm $\div 3$ cm = 200 .
 - Distance = $15 \times 200 = 3000$ cm = 30 m
- c. **36 m**
 - Height $\div 48 = 1.5 \div 2 = 3/4$, so height = 36 m.

Task C: Halving and straight lines

a. **40 g**

- 20 days = 4 halvings: $640 \rightarrow 320 \rightarrow 160 \rightarrow 80 \rightarrow 40$.

b. **35 days**

- $640 \div 5 = 128 = 2^7$, so 7 halvings.
- $7 \times 5 = 35$ days

c. **27 cm; 5.5 kg**

- $20 + 2 \times 3.5 = 27$
- $20 + 2m = 31$ gives $m = 5.5$

Extension

1. **2040 m**

- $340 \times 6 = 2040$

2. **255 m**

- The sound goes there and back: $340 \times 1.5 = 510$ m in total.
- $510 \div 2 = 255$ m

Every question is original and every answer was recomputed by computer before publishing.