Standard Form — Write and Calculate

Core Worksheet

Worked Examples & Guided Practice

I Do (Teacher Model) (a) Write 0.00045 in standard form.
(b) Work out $(3 \times 10^5) \times (4 \times 10^4)$. Give your answer in standard form.

We Do (Guided Practice) (a) Write 680 000 in standard form.
(b) Work out $(8 \times 10^7) \div (2.5 \times 10^3)$. Give your answer in standard form.

You Do (Independent Practice) Work out $(4.2 \times 10^6) + (3.8 \times 10^5)$. Give your answer in standard form.

Challenge (Extension) Work out $\dfrac{(6 \times 10^8) + (4 \times 10^7)}{2 \times 10^3}$. Give your answer in standard form.

Practice Perfect Questions

Q1. Write 0.0072 and 450 000 in standard form.

Q2. Work out $(2 \times 10^4) \times (3.5 \times 10^{-2})$. Give your answer in standard form.

Q3. Work out $(9 \times 10^{-3}) \div (3 \times 10^{-6})$. Give your answer in standard form.

Q4. Work out $(5.4 \times 10^5) - (8 \times 10^4)$. Give your answer in standard form.

Q5. The distance from Earth to the Sun is 1.5×10^8 km. Light travels at 3×10^5 km/s. Calculate the time taken in seconds for light to travel from the Sun to Earth.

Q6. Work out $\dfrac{(3 \times 10^4) \times (8 \times 10^5)}{4 \times 10^{-2}}$. Give your answer in standard form.

Answers & Worked Solutions

Model Solutions

- **I Do:** (a) 4.5×10^{-4}; (b) $(3 \times 4) \times 10^{5+4} = 12 \times 10^{9} = 1.2 \times 10^{10}$
- **We Do:** (a) 6.8×10^{5}; (b) $(8 \div 2.5) \times 10^{7-3} = 3.2 \times 10^{4}$
- **You Do:** $(42 \times 10^{5}) + (3.8 \times 10^{5}) = 45.8 \times 10^{5} = 4.58 \times 10^{6}$
- **Challenge:** $\dfrac{6.4 \times 10^{8}}{2 \times 10^{3}} = 3.2 \times 10^{5}$

Practice Perfect Questions Solutions

Q1. $0.0072 = 7.2 \times 10^{-3}$; $450\,000 = 4.5 \times 10^{5}$

Q2. $7 \times 10^{4+(-2)} = 7 \times 10^{2} = 700$ (Standard form: 7×10^{2})

Q3. $(9 \div 3) \times 10^{-3-(-6)} = 3 \times 10^{3}$

Q4. $(54 \times 10^{4}) - (8 \times 10^{4}) = 46 \times 10^{4} = 4.6 \times 10^{5}$

Q5. Time $= \dfrac{1.5 \times 10^{8}}{3 \times 10^{5}} = 0.5 \times 10^{3} = 500$ seconds

Q6. $\dfrac{24 \times 10^{9}}{4 \times 10^{-2}} = 6 \times 10^{9-(-2)} = 6 \times 10^{11}$