

Level 1: basic

1. $(2 \times 10^3 + 3 \times 10^2) \times 10^1$
2. $(5 \times 10^4) \div (2 \times 10^2) + 1 \times 10^3$
3. $(3 \times 10^5 - 1 \times 10^4) \div (2 \times 10)$

Level 2: intermediate

4. $(4 \times 10^3)^2 \div (8 \times 10^5)$
5. $(6 \times 10^2) \times (3 \times 10^3) \div (9 \times 10)$
6. $(2 \times 10^4)^3 \div (4 \times 10^5)$

Level 3: advanced

7. $(1.5 \times 10^3 + 2.5 \times 10^2)^2 \div (5 \times 10^4)$
8. $(3 \times 10^2)^2 \times (2 \times 10^{-1})$
9. $(1.2 \times 10^5) \div (4 \times 10^2) \times (2 \times 10^3)$

Level 4: challenge

10. $[(2 \times 10^3)^2 \div (4 \times 10^2)] \times (5 \times 10^{-1})^2$

Level 1: basic

$$\begin{aligned} 1. \quad & (2 \times 10^3 + 3 \times 10^2) \times 10^1 \\ & = (2.3 \times 10^3) \times 10 \\ & = 2.3 \times 10^4 \end{aligned}$$

$$\begin{aligned} 2. \quad & (5 \times 10^4) \div (2 \times 10^2) + 1 \times 10^3 \\ & = (2.5 \times 10^2) + 1 \times 10^3 \\ & = 1.25 \times 10^3 \end{aligned}$$

$$\begin{aligned} 3. \quad & (3 \times 10^5 - 1 \times 10^4) \div (2 \times 10) \\ & = (2.9 \times 10^5) \div (2 \times 10) \\ & = 1.45 \times 10^4 \end{aligned}$$

Level 2: intermediate

$$\begin{aligned} 4. \quad & (4 \times 10^3)^2 \div (8 \times 10^5) \\ & = (16 \times 10^6) \div (8 \times 10^5) \\ & = 2 \times 10^1 \end{aligned}$$

$$\begin{aligned} 5. \quad & (6 \times 10^2) \times (3 \times 10^3) \div (9 \times 10) \\ & = (18 \times 10^5) \div (9 \times 10) \\ & = 2 \times 10^4 \end{aligned}$$

$$\begin{aligned} 6. \quad & (2 \times 10^4)^3 \div (4 \times 10^5) \\ & = (8 \times 10^{12}) \div (4 \times 10^5) \\ & = 2 \times 10^7 \end{aligned}$$

Level 3: advanced

$$\begin{aligned} 7. \quad & (1.5 \times 10^3 + 2.5 \times 10^2)^2 \div (5 \times 10^4) \\ & = (1.75 \times 10^3)^2 \div (5 \times 10^4) \\ & = (3.0625 \times 10^6) \div (5 \times 10^4) \\ & = 6.125 \times 10^1 \end{aligned}$$

$$\begin{aligned} 8. \quad & (3 \times 10^2)^2 \times (2 \times 10^{-1}) \\ & = (9 \times 10^4) \times (2 \times 10^{-1}) \\ & = 1.8 \times 10^4 \end{aligned}$$

$$\begin{aligned} 9. \quad & (1.2 \times 10^5) \div (4 \times 10^2) \times (2 \times 10^3) \\ & = (3 \times 10^2) \times (2 \times 10^3) \\ & = 6 \times 10^5 \end{aligned}$$

$$\begin{array}{r} 175 \\ 175 \times \\ \hline 875 \\ 12250 \\ 15300+ \\ \hline 30625 \\ \hline 1 \quad 1 \quad 1 \\ 5 \overline{) 3.0625} \\ \underline{0.6125} \end{array}$$

Level 4: challenge

$$\begin{aligned} 10. \quad & [(2 \times 10^3)^2 \div (4 \times 10^2)] \times (5 \times 10^{-1})^2 \\ & = [(4 \times 10^6) \div (4 \times 10^2)] \times (25 \times 10^{-2}) \\ & = (1 \times 10^4) \times (25 \times 10^{-2}) \\ & = 2.5 \times 10^4 \end{aligned}$$