

Foundation GCSE: Standard Form

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. Write 4 500 in standard form.
2. Write 32 000 in standard form.
3. Write 0.0052 in standard form.
4. Write 0.000 78 in standard form.
5. Write 6.3×10^3 as an ordinary number.
6. Write 8.12×10^{-4} as an ordinary number.
7. Calculate $3 \times 10^4 \times 2 \times 10^3$, giving your answer in standard form.
8. Calculate $8 \times 10^5 \div 4 \times 10^2$, giving your answer in standard form.
9. Calculate $(4 \times 10^3) + (2 \times 10^3)$, giving your answer in standard form.
10. Write 45×10^4 in standard form.
11. Write 0.07×10^{-2} in standard form.
12. Calculate $5 \times 10^4 \times 6 \times 10^3$, giving your answer in standard form.
13. Calculate $3.6 \times 10^7 \div 9 \times 10^2$, giving your answer in standard form.
14. Calculate $(4.2 \times 10^5) + (3.1 \times 10^5)$, giving your answer in standard form.
15. Calculate $(6.5 \times 10^4) + (2 \times 10^3)$, giving your answer in standard form.
16. Calculate $(9 \times 10^6) - (4 \times 10^5)$, giving your answer in standard form.
17. Calculate $(3 \times 10^4)^2$, giving your answer in standard form.
18. Work out the value of $\frac{8 \times 10^5 \times 3 \times 10^2}{4 \times 10^3}$, giving your answer in standard form.
19. Calculate $(7.2 \times 10^{-3}) \times (4 \times 10^5)$, giving your answer in standard form.
20. Find the value of $\frac{5.4 \times 10^3 + 2.6 \times 10^3}{2 \times 10^{-2}}$, giving your answer in standard form.

Answers & Worked Solutions

1. 4.5×10^3
Move the decimal point 3 places to the left:
 4.5×10^3 .
2. 3.2×10^4
Move the decimal point 4 places to the left:
 3.2×10^4 .
3. 5.2×10^{-3}
Move the decimal point 3 places to the right:
 5.2×10^{-3} .
4. 7.8×10^{-4}
Move the decimal point 4 places to the right:
 7.8×10^{-4} .
5. 6 300
Move the decimal point 3 places to the right:
6 300.
6. 0.000812
Move the decimal point 4 places to the left:
0.000812.
7. 6×10^7
Multiply coefficients ($3 \times 2 = 6$) and add powers ($4 + 3 = 7$).
8. 2×10^3
Divide coefficients ($8 \div 4 = 2$) and subtract powers ($5 - 2 = 3$).
9. 6×10^3
Powers are the same, so add coefficients:
 $4 + 2 = 6$.
10. 4.5×10^5
Rewrite 45 as 4.5×10 , so $4.5 \times 10 \times 10^4 = 4.5 \times 10^5$.
11. 7×10^{-4}
Rewrite 0.07 as 7×10^{-2} , so $7 \times 10^{-2} \times 10^{-2} = 7 \times 10^{-4}$.
12. 3×10^8
 $5 \times 6 = 30$, and $10^4 \times 10^3 = 10^7$, giving
 $30 \times 10^7 = 3 \times 10^8$.
13. 4×10^4
 $3.6 \div 9 = 0.4$, and $10^7 \div 10^2 = 10^5$, giving
 $0.4 \times 10^5 = 4 \times 10^4$.
14. 7.3×10^5
Powers are equal: $4.2 + 3.1 = 7.3$, so 7.3×10^5 .
15. 6.7×10^4
Convert 2×10^3 to 0.2×10^4 , then add:
 $6.5 + 0.2 = 6.7$.
16. 8.6×10^6
Convert 4×10^5 to 0.4×10^6 , then subtract:
 $9 - 0.4 = 8.6$.
17. 9×10^8
Square the coefficient ($3^2 = 9$) and multiply the power ($4 \times 2 = 8$).
18. 6×10^4
Numerator is 24×10^7 , divide by 4×10^3 to get 6×10^4 .
19. 2.88×10^3
 $7.2 \times 4 = 28.8$, $10^{-3} \times 10^5 = 10^2$, giving
 $28.8 \times 10^2 = 2.88 \times 10^3$.
20. 4×10^5
Numerator is 8×10^3 , divide by 2×10^{-2} to get 4×10^5 .