Multiplying and dividing in scientific notation

Multiply or divide the numbers, then the powers of 10. Give each answer in scientific notation.

Name _____ Date _____

1. $(6 \times 10^{3}) \times (1.5 \times 10^{5}) =$ _____
2. $(2 \times 10^{2}) \times (1.2 \times 10^{7}) =$ _____
3. $(6 \times 10^{4}) \times (4.5 \times 10^{3}) =$ _____
4. $(1.8 \times 10^{5}) \div (1.5 \times 10^{2}) =$ _____
5. $(1.6 \times 10^{2}) \times (2 \times 10^{-8}) =$ _____
6. $(6.4 \times 10^{2}) \div (1.6 \times 10^{5}) =$ _____
7. $(3.2 \times 10^{7}) \div (4 \times 10^{2}) =$ _____
8. $(4 \times 10^{9}) \times (6 \times 10^{8}) =$ _____
9. $(3.75 \times 10^{9}) \div (1.5 \times 10^{-4}) =$ _____
10. $(3.75 \times 10^{9}) \div (5 \times 10^{7}) =$ _____
11. $(7 \times 10^{4}) \times (3 \times 10^{2}) =$ _____
12. $(3.5 \times 10^{4}) \times (1.8 \times 10^{6}) =$ _____
13. $(1.25 \times 10^{6}) \div (5 \times 10^{3}) =$ _____
14. $(4.8 \times 10^{5}) \div (1.6 \times 10^{5}) =$ _____
15. $(1.2 \times 10^{9}) \times (3.5 \times 10^{-4}) =$ _____
16. $(1.25 \times 10^{8}) \div (5 \times 10^{4}) =$ _____
17. $(6 \times 10^{9}) \times (1.6 \times 10^{7}) =$ _____
18. $(4.2 \times 10^{2}) \div (1.2 \times 10^{2}) =$ _____
19. $(1.8 \times 10^{7}) \div (1.5 \times 10^{-2}) =$ _____
20. $(8 \times 10^{6}) \times (1.5 \times 10^{4}) =$ _____

Multiplying and dividing in scientific notation: answer key

Each question worked out, the answer in colour.

1. $(6 \times 10^3) \times (1.5 \times 10^5) = (6 \times 1.5) \times 10^{3+5} = 9 \times 10^8$
2. $(2 \times 10^2) \times (1.2 \times 10^7) = (2 \times 1.2) \times 10^{2+7} = 2.4 \times 10^9$
3. $(6 \times 10^4) \times (4.5 \times 10^3) = (6 \times 4.5) \times 10^{4+3} = 27 \times 10^7 = 2.7 \times 10^8$
4. $(1.8 \times 10^5) \div (1.5 \times 10^2) = (1.8 \div 1.5) \times 10^{5-2} = 1.2 \times 10^3$
5. $(1.6 \times 10^2) \times (2 \times 10^{-8}) = (1.6 \times 2) \times 10^{2+(-8)} = 3.2 \times 10^{-6}$
6. $(6.4 \times 10^2) \div (1.6 \times 10^5) = (6.4 \div 1.6) \times 10^{2-5} = 4 \times 10^{-3}$
7. $(3.2 \times 10^7) \div (4 \times 10^2) = (3.2 \div 4) \times 10^{7-2} = 0.8 \times 10^5 = 8 \times 10^4$
8. $(4 \times 10^9) \times (6 \times 10^8) = (4 \times 6) \times 10^{9+8} = 24 \times 10^{17} = 2.4 \times 10^{18}$
9. $(3.75 \times 10^9) \div (1.5 \times 10^{-4}) = (3.75 \div 1.5) \times 10^{9-(-4)} = 2.5 \times 10^{13}$
10. $(3.75 \times 10^9) \div (5 \times 10^7) = (3.75 \div 5) \times 10^{9-7} = 0.75 \times 10^2 = 7.5 \times 10^1$
11. $(7 \times 10^4) \times (3 \times 10^2) = (7 \times 3) \times 10^{4+2} = 21 \times 10^6 = 2.1 \times 10^7$
12. $(3.5 \times 10^4) \times (1.8 \times 10^6) = (3.5 \times 1.8) \times 10^{4+6} = 6.3 \times 10^{10}$
13. $(1.25 \times 10^6) \div (5 \times 10^3) = (1.25 \div 5) \times 10^{6-3} = 0.25 \times 10^3 = 2.5 \times 10^2$
14. $(4.8 \times 10^5) \div (1.6 \times 10^5) = (4.8 \div 1.6) \times 10^{5-5} = 3 \times 10^0$
15. $(1.2 \times 10^9) \times (3.5 \times 10^{-4}) = (1.2 \times 3.5) \times 10^{9+(-4)} = 4.2 \times 10^5$
16. $(1.25 \times 10^8) \div (5 \times 10^4) = (1.25 \div 5) \times 10^{8-4} = 0.25 \times 10^4 = 2.5 \times 10^3$
17. $(6 \times 10^9) \times (1.6 \times 10^7) = (6 \times 1.6) \times 10^{9+7} = 9.6 \times 10^{16}$
18. $(4.2 \times 10^2) \div (1.2 \times 10^2) = (4.2 \div 1.2) \times 10^{2-2} = 3.5 \times 10^0$
19. $(1.8 \times 10^7) \div (1.5 \times 10^{-2}) = (1.8 \div 1.5) \times 10^{7-(-2)} = 1.2 \times 10^9$
20. $(8 \times 10^6) \times (1.5 \times 10^4) = (8 \times 1.5) \times 10^{6+4} = 12 \times 10^{10} = 1.2 \times 10^{11}$