School786
AN ONLINE SCHOOL

Name: Due Date: Teacher: Parent Sign:

Questions — Working with powers of 10 (mix of numeracy and word problems)

1. Compute: $(6 \times 10^3) \times 4$.

2. Compute: 38×10^2.

3. Compute: $(3 \times 10^4) \times (5 \times 10^2)$.

4. Compute: 0.45×10^3.

5. Compute: $(7 \times 10^5) \times 2$.

6. Compute: $(4.2 \times 10^3) \times (3 \times 10^1)$.

7. Compute: 125×10^3.

8. Compute: $(9 \times 10^2) \times (6 \times 10^2)$.

9. Compute: 0.007×10^6.

10. Multiply and give answer in standard form: $(2.5 \times 10^2) \times (4 \times 10^3)$.

11. A factory produces 8×10^3 screws each day. How many screws does it produce in 30 days?

12. A car travels 6.5×10^2 kilometers per day. How far does it travel in 10 days?

13. A data center stores 3×10^5 files per server. If there are 200 servers, how many files in total? (Give answer as a product then simplified.)

14. A bacteria culture has 4×10^6 cells per ml. What is the number of cells in 3 ml?

15. An astronaut's supply box contains 2.4×10^1 energy bars, and there are 1.0×10^2 boxes. How many bars total?

16. Compute: $(12 \times 10^3) \times (25 \times 10^2)$.

17. Compute: $0.36 \times (5 \times 10^3)$.

18. Compute: $(1.25 \times 10^4) \times 8$.

19. Compute: $(6 \times 10^7) \times (0.5 \times 10^1)$.

20. Compute: $(11 \times 10^2) \times (11 \times 10^2)$.

21. Round 47,600 to the nearest power of 10.

22. Round 0.0039 to the nearest power of 10.

23. Which power of 10 is closest to 6,200? (Choose the one from 10^2, 10^3, 10^4.)

24. Approximate 8,450 by a single power of 10 (that is, to the nearest 10^n).

25. Approximate 0.00072 by a single power of 10.

26. Use powers of 10 to estimate: $4,780 \times 3,200$. (Round each number to one power of 10, multiply, give estimate.)

27. Use powers of 10 to estimate: $0.039 \times 5,200$.

28. Estimate the product $67,000 \times 0.008$ using powers of 10.

29. Estimate $9,500 \times 6,300$ using powers of 10 (one power-of-10 approximation for each factor).

30. Use powers of 10 to estimate: $2.7 \times 10^4 \times 4.1 \times 10^2$ (round each to a single power of 10 first).

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31. A library has about 4.3×10^5 books. Estimate the number of books using a single power of 10.

32. A smartphone stores about 128,000 photos. Write the nearest power of 10 that approximates this number.

33. The mass of a small asteroid is 3.6×10^{12} kg. Approximate its mass with a single power of 10.

34. The width of a human hair is about 8×10^{-5} meters. Approximate this length with a power of 10.

35. An online video has 6.2×10^6 views. What is the nearest power of 10 approximation?

36. Use the power-of-10 approximations to estimate: If each of 3×10^4 houses uses 1.8×10^2 kWh per day, roughly how many kWh per day do all houses use? (Round each to a power of 10 first.)

37. A farmer has 2.4×10^3 kg of corn in each silo and 7×10^1 silos. Estimate total kg of corn using powers of 10.

38. A shipping company ships 4.9×10^3 boxes per week and there are 52 weeks. Estimate total boxes per year using powers of 10.

39. An electronic chip has about 2.3×10^9 transistors. Roughly what single power of 10 approximates this?

40. The brightness of a star is 5.5×10^{21} watts. Approximate it with a single power of 10.

41. Multiply: $(0.25 \times 10^{4)}) \times (0.4 \times 10^{2)})$.

42. Compute: $(15 \times 10^{1)}) \times (2 \times 10^{3)})$.

43. A shipment contains 7.5×10^2 boxes, each holding 1.2×10^1 items. How many items total?

44. A bacteria doubles every hour. If one culture has 3×10^2 bacteria now, how many after 5 hours (approximate using powers of 10 for the doubling factor $2^5 = 32$ $10^1.5$ — for this question, approximate 32 by a power of 10 first then multiply)?

45. Multiply and express result in standard form: $(3.2 \times 10^{-2)}) \times (4 \times 10^{3)})$.

46. Round 999,999 to the nearest power of 10.

47. Round 1,200,000 to the nearest power of 10.

48. Which is closer to 4.6×10^3: 10^3 or $10^{4?}$

49. Use powers of 10 to estimate the product $3.6 \times 10^5 \times 2.7 \times 10^2$ by rounding each factor to a single power of 10 first.

50. A printer can print 2.05×10^3 pages per hour. Estimate how many pages it prints in a 40-hour week using power-of-10 rounding for the rate and for the time.