



Mathematical Composition Quiz - **ANSWERS** by Laura King, MA, ELS

Directions: Choose the correct response from the options given for the following questions on mathematical composition based on your understanding of chapter 21 of the *AMA Manual of Style*.

1. Select an alternate correct way to present the following formula:

$$a + \frac{b + c + e}{d}$$

- a. $a + b + c/d + e$
- b. $\frac{a + b + c}{d + e}$
- c. $a + [(b + c)/d] + e$**
- d. all of the above

Editor’s Note: Many journals prefer to publish unstacked (using a slash rather than a horizontal line) rather than stacked (using a horizontal line to separate the numerator and denominator) equations. Whenever a fraction is unstacked, parentheses, brackets, and braces (collectively called “fences”) should be used as appropriate to avoid ambiguity. The equations in (a) and (b) are ambiguous or incorrect interpretations of the original equation; the equation in option (c) is clear (§21.3, *Stacked vs Unstacked*, pp 908-909 in print).

2. Which of the following is the correct way to express velocity (meters per second):

- a. m/s
- b. $\frac{m}{s}$
- c. $m \bullet s^{-1}$
- d. all of the above**

Editor’s Note: A forward slash, a horizontal line, a negative exponent, or the word per may be used to express rates, which are generally obtained by dividing one unit by another (§21.6, *Expressing Multiplication and Division*, pp 910-911 in print).

3. In the following formula, indicate which item(s) should be boldface: $V = (A)(B^2)\pi/6$.

- a. V**
- b. A
- c. B^2
- d. none of the above

Editor’s Note: Arrays (A) and vectors (V) should be set boldface. Mathematical functions, such as sin, cos, ln, and log, are set roman (§21.8, *Typography and Capitalization*, pp 912 in print).



4. Which of the following sentences is correctly punctuated:

- a. **The percentage of tumor inhibition was calculated using the following formula:**

$$[1 - (T/C)] \times 100,$$

where T and C represent the mean tumor volumes of the treatment group and the control group, respectively.

- b. The percentage of tumor inhibition was calculated using the following formula $[1 - (T/C)] \times 100$ where T and C represent the mean tumor volumes of the treatment group and the control group, respectively.
- c. The percentage of tumor inhibition was calculated using the following formula $[1 - (T/C)] \times 100$, where T and C represent the mean tumor volumes of the treatment group and the control group, respectively
- d. none of the above

Editor's Note: Punctuation after a set-off equation is helpful and often clarifies the meaning. Display equations are often preceded by punctuation. In this sentence, a colon before the display equation and a comma after the equation make the sentence more readable (§21.9, Punctuation, pp 912-913 in print).

5. Which of the following is the correct way to rewrite the radical $\sqrt{a^2 - b^2}$:

- a. $a^2 - b^2/1/2$
- b. $a^2 - b^{2\frac{1}{2}}$
- c. $(a^2 - b^2)^{\frac{1}{2}}$**
- d. none of the above

Editor's Note: Use of radicals may sometimes be avoided by substituting a fractional exponent, but be sure not to sacrifice clarity. Option (c) is an easy, accurate, and clear alternative to typesetting a radical (§21.4.1, Fractional Exponents vs Radicals, pp 909 in print).

6. Which of the following symbols means base of the system of natural logarithms:

- a. π
- b. e**
- c. i
- d. none of the above

Editor's Note: e is base of the system of natural logarithms, π stands for pi, and i is the square root of -1 (§21.7, Commonly Used Symbols, pp 911-912 in print).



7. Which of the following equations is correctly capitalized:

- a. **$PAR_{unadjusted} = [Prevalence \times (Relative Risk - 1)]/[Prevalence \times (Relative Risk - 1) + 1]$**
- b. $PAR_{unadjusted} = [prevalence \times (relative risk - 1)]/[prevalence \times (relative risk - 1) + 1]$
- c. $PAR_{unadjusted} = [Prevalence \times (Relative risk - 1)]/[Prevalence \times (Relative risk - 1) + 1]$
- d. none of the above

Editor's Note: For equations that are set off from the text, the words and letters should be set roman and the equation should be capitalized by the same rules that apply to titles (§21.8, *Typography and Capitalization*, pp 912 in print).

8. Which of the following equations is typeset correctly:

- a. $Y + E = r$ and $E + L + r = \text{Normal Corneal Diameter (11 mm/2) = 5.5 mm}$
- b. **$Y + E = r$ and $E + L + r = \text{Normal Corneal Diameter (11 mm/2) = 5.5 mm}$**
- c. $Y + E = r$ and $E + L + r = \text{Normal Corneal Diameter (11 mm/2) = 5.5 mm}$
- d. none of the above

Editor's Note: In general, variables, unknown quantities, and constants (eg, x, y, z, A, B, C) are set in italics, whereas units of measure (eg, kg, mL, s, m) and symbols (including Greek characters and numbers) are set roman (§21.8, *Typography and Capitalization*, pp 912 in print).

9. Which is the best way to present the following equation:

- a. **Body mass index is calculated as weight in kilograms divided by height in meters squared.**
- b. body mass index = wt (kg)/ht (m²)
- c. Body Mass Index = Weight (in Kilograms)/Height (in Meters Squared)
- d. Body Mass Index = Weight^{kg}/Height^{m²}

Editor's Note: For short, simple equations, it may be preferable to express an equation as words in the running text, rather than to set it off as an actual formula (§21.2, *Displayed vs Run-In*, pp 908 in print).

10. Which of the following equations correctly uses brackets, parentheses, and braces:

- a. $\{4 + (-1[2 - 1])\}^2$
- b. $[4 + \{-1(2 - 1)\}]^2$
- c. $(4 + [-1\{2 - 1\}])^2$
- d. **$\{4 + [-1(2 - 1)]\}^2$**

Editor's Note: Parentheses should be used to set off simple expressions. If additional fences are needed for clarity, parenthetical expressions should be set off in brackets, and bracketed expressions should be set off with braces. Note that parentheses are thus always the innermost fences. All fences should be present in matched pairs (§21.3, *Stacked vs Unstacked*, pp 908-909 in print).

