INTRODUCTION
As written languages evolved, rules were invented to disambiguate writing. This included inserting spaces between words, punctuation, and more recently the paragraph.

Counting the number of paragraphs on any page is second nature for readers whose primary language is a modern descendant of the Latin language family. But consider some of the rules that the brains of fluent readers handle automatically:
- The first sentence of a paragraph is indented and each indentation is the same width and aligned with adjacent paragraphs.
- Sentences begin with a capital letter and end with a punctuation mark.
- We read from left-to-right and then top-to-bottom.
- Sentences do not overlap or cut through each other.

Example: The layout and continuity of text on a page serves to increase its readability and demarcate transitions. This is made possible by the use of text spacing and blank space.

Writing has order and structure. We actively teach and correct errors in language when written or spoken. This is especially true in the English Language Arts; however, it remains a problem in written mathematical problem-solving when order and structure are often overlooked and uncorrected because the importance of such feedback to students is secondary to a correct numerical solution.

Consider the following solutions to the same problem, submitted by students in the same class.

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ KE = \frac{1}{2}mv^2 ]</td>
<td>[ KE = \frac{1}{2} \cdot 0.5 \cdot 6 \cdot 3 \cdot \frac{m}{s}^2 ]</td>
</tr>
<tr>
<td>[ KE = \frac{1}{2} \cdot 0.5 \cdot 2 \cdot 5 \cdot 2 \cdot 2000 \cdot \frac{m}{s} ]</td>
<td>[ KE = 625 \text{ J} ]</td>
</tr>
</tbody>
</table>

Both answers arrive at the same final solution, however example 1 looks "cleaner." This is because the solution is more logically structured and organized.

Analysis of Example 1
Clear beginning - as if the student is using functions as the first sentence in a paragraph.
Clear solution - this function as if it was the last sentence in a paragraph.
Each individual line of work is aligned to the equal sign above and below it - in the same way paragraphs are aligned by indentation.

Analysis of Example 2
When a calculator is provided, this work is not required - and it obscures the logical coherence of the solution structure. However, our students generally believe that this constitutes the required part of "calculating" and "work" for open responses - if only consumes time and adds a potential source of error.

APPLICATION
- Define and differentiate arithmetical calculations (addition, subtraction, multiplication, and/or division) from procedural calculations (calculations that make use of "formulas" such as the Pythagorean theorem or the definition of constant speed).
- Have students begin by writing the equation that they are using to answer the question. Then have them draw a lightly dotted vertical line through the middle of the equal sign so that each additional line of work in the calculation will be aligned to the vertical line.
- When grading student work avoid ambiguous feedback such as "difficult to follow" or "handwriting needs improvement."
- Provide specific feedback recognizing how students incorporate logical structure and flow.

Implementation Help

<table>
<thead>
<tr>
<th>Suggestion for Improving Student Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have students set aside a small area, away from the procedural calculation (the work that answers the question being asked) that they can use if they need to do arithmetical calculations. This differentiates the work that they are required to show to demonstrate their understanding from &quot;scrub&quot; calculations.</td>
</tr>
<tr>
<td>Have students write the equation that they are using to solve the problem. Having this equation is helpful for many students because it reinforces what they are solving for.</td>
</tr>
<tr>
<td>Draw a lightly dotted vertical line through all equal signs. This will help students line up each line of work.</td>
</tr>
</tbody>
</table>

Example:
- \[ a^2 + b^2 + c^2 \]
- \[ a^2 + (b^2 + c^2) \]
- \[ a^2 + 9 + 16 \]