# Mathematics and Science Directing Words

**Discuss**
The word “discuss” **will not** be used as a directing word on math and science diploma examinations because it is not used consistently to mean a single activity.

**The following words are specific in meaning.**

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Algebraically</strong></td>
<td>Using mathematical procedures that involve letters or symbols to represent numbers</td>
</tr>
<tr>
<td><strong>Analyze</strong></td>
<td>To make a mathematical, chemical, or methodical examination of parts to determine the nature, proportion, function, interrelationship, etc. of the whole</td>
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<tr>
<td><strong>Compare</strong></td>
<td>Examine the character or qualities of two things by providing characteristics of both that point out their <em>similarities</em> and <em>differences</em></td>
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<tr>
<td><strong>Conclude</strong></td>
<td>State a logical end based on reasoning and/or evidence</td>
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<tr>
<td><strong>Contrast/Distinguish</strong></td>
<td>Point out the <em>differences</em> between two things that have similar or comparable natures</td>
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<tr>
<td><strong>Criticize</strong></td>
<td>Point out the <em>demerits</em> of an item or issue</td>
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<tr>
<td><strong>Define</strong></td>
<td>Provide the essential qualities or meaning of a word or concept; make distinct and clear by marking out the limits</td>
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<tr>
<td><strong>Describe</strong></td>
<td>Give a written account or represent the characteristics of something by a figure, model, or picture</td>
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<tr>
<td><strong>Design/Plan</strong></td>
<td>Construct a plan; i.e., a detailed sequence of actions for a specific purpose</td>
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<tr>
<td><strong>Determine</strong></td>
<td>Find a solution, to a specified degree of accuracy, to a problem by showing appropriate formulas, procedures, and calculations</td>
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<tr>
<td><strong>Enumerate</strong></td>
<td>Specify one by one or list in concise form and according to some order</td>
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<tr>
<td><strong>Evaluate</strong></td>
<td>Give the significance or worth of something by identifying the good and bad points or the advantages and disadvantages</td>
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<tr>
<td><strong>Explain</strong></td>
<td>Make clear what is not immediately obvious or entirely known; give the cause of or reason for; make known in detail</td>
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<tr>
<td><strong>Graphically</strong></td>
<td>Using a drawing that is produced electronically or by hand and that shows a relation between certain sets of numbers</td>
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<tr>
<td><strong>How</strong></td>
<td>Show in what manner or way, with what meaning</td>
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<tr>
<td><strong>Hypothesize</strong></td>
<td>Form a tentative proposition intended as a possible explanation for an observed phenomenon; i.e., a possible cause for a specific effect. The proposition should be testable logically and/or empirically</td>
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<tr>
<td><strong>Identify</strong></td>
<td>Recognize and select as having the characteristics of something</td>
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<tr>
<td><strong>Illustrate</strong></td>
<td>Make clear by giving an example. The form of the example must be specified in the question; i.e., word description, sketch, or diagram</td>
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<tr>
<td><strong>Infer</strong></td>
<td>Form a generalization from sample data; arrive at a conclusion by reasoning from evidence</td>
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<tr>
<td><strong>Interpret</strong></td>
<td>Tell the meaning of something; present information in a new form that adds meaning to the original data</td>
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<tr>
<td><strong>Justify/Show How</strong></td>
<td>Show reasons for or give facts that support a position</td>
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<tr>
<td><strong>Model</strong></td>
<td>Find a model (in mathematics, a model of a situation is a pattern that is supposed to represent or set a standard for a real situation) that does a good job of representing a situation</td>
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<tr>
<td><strong>Outline</strong></td>
<td>Give, in an organized fashion, the essential parts of something. The form of the outline must be specified in the question; i.e., list, flow chart, concept map</td>
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<tr>
<td><strong>Predict</strong></td>
<td>Tell in advance on the basis of empirical evidence and/or logic</td>
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<tr>
<td><strong>Prove</strong></td>
<td>Establish the truth or validity of a statement for the general case by giving factual evidence or logical argument</td>
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<tr>
<td><strong>Relate</strong></td>
<td>Show logical or causal connection between things</td>
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<tr>
<td><strong>Sketch</strong></td>
<td>Provide a drawing that represents the key features of an object or graph</td>
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<tr>
<td><strong>Solve</strong></td>
<td>Give a solution for a problem; i.e., explanation in words and/or numbers</td>
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<tr>
<td><strong>Summarize</strong></td>
<td>Give a brief account of the main points</td>
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<tr>
<td><strong>Trace</strong></td>
<td>Give a step-by-step description of the development</td>
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<tr>
<td><strong>Verify</strong></td>
<td>Establish, by substitution for a particular case or by geometric comparison, the truth of a statement</td>
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<tr>
<td><strong>Why</strong></td>
<td>Show the cause, reason, or purpose</td>
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