

## TASK VERBS FOR AP PHYSICS FREE-RESPONSE QUESTIONS

The following task verbs are commonly used in the free-response questions.

**Calculate:** Perform mathematical steps to arrive at a final answer, including algebraic expressions, properly substituted numbers, and correct labeling of units and significant figures. Also phrased as “What is?”

**Compare:** Provide a description or explanation of similarities and/or differences.

**Derive:** Perform a series of mathematical steps using equations or laws to arrive at a final answer.

**Describe:** Provide the relevant characteristics of a specified topic.

**Determine:** Make a decision or arrive at a conclusion after reasoning, observation, or applying mathematical routines (calculations).

**Evaluate:** Roughly calculate numerical quantities, values (greater than, equal to, less than), or signs (negative, positive) of quantities based on experimental evidence or provided data. When making estimations, showing steps in calculations are not required.

**Explain:** Provide information about how or why a relationship, pattern, position, situation, or outcome occurs, using evidence and/or reasoning to support or qualify a claim. Explain “how” typically requires analyzing the relationship, process, pattern, position, situation, or outcome; whereas, explain “why” typically requires analysis of motivations or reasons for the relationship, process, pattern, position, situation, or outcome.

**Justify:** Provide evidence to support, qualify, or defend a claim, and/or provide reasoning to explain how that evidence supports or qualifies the claim.

**Label:** Provide labels indicating unit, scale, and/or components in a diagram, graph, model, or representation.

**Plot:** Draw data points in a graph using a given scale or indicating the scale and units, demonstrating consistency between different types of representations.

**Sketch/Draw:** Create a diagram, graph, representation, or model that illustrates or explains relationships or phenomena, demonstrating consistency between different types of representations. Labels may or may not be required.

**State/Indicate/Circle:** Indicate or provide information about a specified topic, without elaboration or explanation. Also phrased as “What...?” or “Would...?” interrogatory questions.

**Verify:** Confirm that the conditions of a scientific definition, law, theorem, or test are met in order to explain why it applies in a given situation. Also, use empirical data, observations, tests, or experiments to prove, confirm, and/or justify a hypothesis.