**Graphs and Motion Maps of Accelerated Objects**

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| **Increasing speed in the positive direction** | |
| Think about the cart as it rolls down the incline starting from rest | |
| Draw a motion map. Include velocity and acceleration vectors  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>  Is the velocity positive or negative? Is the acceleration positive or negative? | |
| Predict the graphs describing the motion | The slope of the position vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The slope of the velocity vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Decreasing speed in the positive direction** | |
| Think about the cart as it rolls up the incline after a push    Only consider the motion up thee ramp until the cart stops | |
| Draw a motion map. Include velocity and acceleration vectors  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>  Is the velocity positive or negative? Is the acceleration positive or negative? | |
| Predict the graphs describing the motion | The slope of the position vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The slope of the velocity vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Increasing speed in the negative direction** | |
| Think about the cart as it rolls down the incline toward the origin | |
| Draw a motion map. Include velocity and acceleration vectors  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>  Is the velocity positive or negative? Is the acceleration positive or negative? | |
| Predict the graphs describing the motion | The slope of the position vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The slope of the velocity vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Decreasing speed in the negative direction** | |
| Think about the cart as it rolls down the incline toward the origin | |
| Draw a motion map. Include velocity and acceleration vectors  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>  Is the velocity positive or negative? Is the acceleration positive or negative? | |
| Predict the graphs describing the motion | The slope of the position vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The slope of the velocity vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Up and Down the ramp** | |
| Think about the cart as it rolls down the incline toward the origin | |
| Draw a motion map. Include velocity and acceleration vectors  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>  Is the velocity positive or negative? Is the acceleration positive or negative? | |
| Predict the graphs describing the motion | The slope of the position vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The slope of the velocity vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Up and Down the ramp passing the origin twice** | |
| Think about the cart as it rolls down the incline toward the origin | |
| Draw a motion map. Include velocity and acceleration vectors  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>  Is the velocity positive or negative? Is the acceleration positive or negative? | |
| Predict the graphs describing the motion | The slope of the position vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The slope of the velocity vs time graph is  (constant/ increasing/ decreasing) and  (positive/ negative)  and represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |