Example Problems

2.1 Simple Motion

• Example 1:
- In each of the graphs bellow (distance vs time, velocity vs time, acceleration vs time), sketch the motion of an object that is traveling at constant velocity and moving away from a source.

• Example 2:
- In each of the graphs bellow, sketch the motion of an object that is traveling at constant velocity and moving towards a source.

• Example 3:
- In each of the graphs bellow, sketch the motion of an object that is moving with constant positive acceleration and moving away from a source. An example is an object going down a ramp.
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• Example 4:
  - In each of the graphs below, sketch the motion of an object that is moving with constant positive acceleration and moving towards a source. An example is an object going down a ramp.

![Graphs of motion with constant positive acceleration](image)

• Example 5:
  - In each of the graphs below, sketch the motion of an object that is moving with constant negative acceleration and moving away from a source. An example is an object going up a ramp.

![Graphs of motion with constant negative acceleration](image)

• Example 6:
  - In each of the graphs below, sketch the motion of an object that is moving with constant negative acceleration and moving towards a source. An example is an object going up a ramp.

![Graphs of motion with constant negative acceleration](image)
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- Example 7:
  - In each of the graphs below, sketch the motion of an object that is in free fall moving and away from a source.

- Example 8:
  - In each of the graphs below, sketch the motion of an object that is moving away from a source but accelerating back to the source such as an object thrown up into the air or an object given a push up a hill.
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Example Problems

2.2 Interpreting Distance vs Time Graphs

- Example 1:
  - Use the following distance vs time graph to answer the questions below:

1. Which segment(s) of the graph represent an object moving away from the detector?

2. Which segment(s) of the graph represent an object at rest?

3. Which segment(s) of the graph represent an object moving toward the detector?

4. Which segment of the graph represent an object moving away from the detector with the greatest speed?

5. Which segment of the graph represent an object moving toward the detector with the greatest speed?

6. Which segment of the graph represent an object moving away from the detector at the least speed?

7. Which segment of the graph represent an object moving toward the detector at the least speed?
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Use the graph of distance vs time graph below to answer questions 8 - 18

1. Which segment(s) is the object moving away from the source?

2. Which segment(s) is the object moving towards from the source?

3. Which segment(s) show the object having no motion?

4. Which segment(s) shows the object traveling at constant velocity?

5. Which segment(s) shows the object accelerating?

6. Which segment(s) shows the object traveling at constant positive velocity?

7. Which segment(s) shows the object traveling at constant negative velocity?

8. Which segment show the object moving with the greatest constant positive velocity?

9. Which segment show the object moving with the greatest constant negative velocity?

10. What is the average velocity of the object at 5.2 seconds?
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Student Problems

2.2 Interrupting Distance vs Time Graphs

Use the graph of distance vs time graph below to answer questions 1 - 11

1. Which segment(s) is the object moving away from the source?

2. Which segment(s) is the object moving towards from the source?

3. Which segment(s) show the object having no motion?

4. Which segment(s) shows the object traveling at constant velocity?

5. Which segment(s) shows the object accelerating?

6. Which segment(s) shows the object traveling at constant positive velocity?

7. Which segment(s) shows the object traveling at constant negative velocity?

8. Which segment show the object moving with the greatest constant positive velocity?

9. Which segment show the object moving with the greatest constant negative velocity?

10. What is the average velocity of the object at 5.2 seconds?
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Use the graph of distance vs time graph below to answer questions 12 - 22

1. Which segment(s) is the object moving away from the source?

2. Which segment(s) is the object moving towards from the source?

3. Which segment(s) show the object having no motion?

4. Which segment(s) shows the object traveling at constant velocity?

5. Which segment(s) shows the object accelerating?

6. Which segment(s) shows the object traveling at constant positive velocity?

7. Which segment(s) shows the object traveling at constant negative velocity?

8. Which segment show the object moving with the greatest constant positive velocity?

9. Which segment show the object moving with the greatest constant negative velocity?

10. What is the average velocity of the object at 5.2 seconds?