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| 1. Decide whether the following problem can be solved using precalculus, or whether calculus is required. If the problem can be solved using precalculus, solve it. If the problem seems to require calculus, use a graphical or numerical approach to estimate the solution.​ Find the distance traveled in 4 seconds by an object traveling at a constant velocity of 11 feet per second.​

|  |  |  |
| --- | --- | --- |
|   | a.  | calculus, 44 ft |
|   | b.  | calculus, 64 ft |
|   | c.  | precalculus, 44 ft |
|   | d.  | calculus, 88 ft |
|   | e.  | precalculus, 88 ft |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.1 |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.72 - Recognize problems requiring precalculus and find the solution |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 2. Decide whether the following problem can be solved using precalculus, or whether calculus is required. If the problem can be solved using precalculus, solve it. If the problem seems to require calculus, use a graphical or numerical approach to estimate the solution.​ Find the distance traveled in 5 seconds by an object moving with a velocity of feet per second.​

|  |  |  |
| --- | --- | --- |
|   | a.  | calculus, 62.2693 ft |
|   | b.  | precalculus, 63.6193 ft |
|   | c.  | calculus, 52.3286 ft |
|   | d.  | precalculus, 52.3286 ft |
|   | e.  | precalculus, 62.2693 ft |

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| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.2 |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.73 - Recognize problems requiring calculus and estimate solutions |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 3. Decide whether the following problem can be solved using precalculus, or whether calculus is required. If the problem can be solved using precalculus, solve it. If the problem seems to require calculus, use a graphical or numerical approach to estimate the solution.​ A cyclist is riding on a path whose elevation is modeled by the function where *x* and  are measured in miles. Find the rate of change of elevation when .​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | precalculus, 0.06 |
|   | b.  | calculus, 0.18 |
|   | c.  | calculus, 0.36 |
|   | d.  | calculus, 0.06 |
|   | e.  | precalculus, 0.18 |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.3 |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.73 - Recognize problems requiring calculus and estimate solutions |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 4. Decide whether the following problem can be solved using precalculus, or whether calculus is required. If the problem can be solved using precalculus, solve it. If the problem seems to require calculus, use a graphical or numerical approach to estimate the solution.​ A cyclist is riding on a path whose elevation is modeled by the function where *x* and  are measured in miles. Find the rate of change of elevation when .​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | calculus, 1.62 |
|   | b.  | precalculus, 0.18 |
|   | c.  | calculus, 0.18 |
|   | d.  | precalculus, 1.62 |
|   | e.  | precalculus, 0.43 |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.4 |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.72 - Recognize problems requiring precalculus and find the solution |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 5. Decide whether the following problem can be solved using precalculus, or whether calculus is required. If the problem can be solved using precalculus, solve it. If the problem seems to require calculus, use a graphical or numerical approach to estimate the solution.​ Find the area of the shaded region bounded by the triangle with vertices , , .​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | precalculus, 28 |
|   | b.  | calculus, 42 |
|   | c.  | precalculus, 14 |
|   | d.  | precalculus, 42 |
|   | e.  | calculus, 28 |

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| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.5a |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.72 - Recognize problems requiring precalculus and find the solution |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 6. Decide whether the following problem can be solved using precalculus, or whether calculus is required. If the problem can be solved using precalculus, solve it. If the problem seems to require calculus, use a graphical or numerical approach to estimate the solution.​ Find the area of the shaded region.​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | calculus, 11 |
|   | b.  | precalculus, 11 |
|   | c.  | precalculus, 13 |
|   | d.  | calculus, 16 |
|   | e.  | precalculus, 16 |

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| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.5b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.74 - Recognize problems requiring calculus and estimate solution |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 7. Consider the function and the point  on the graph of *f*. Graph *f* and the secant line passing through  and for .​

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | ​ | b.  | ​ |
|   | c.  | ​ | d.  | ​ |
|   | e.  | ​ |  |  |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.6a |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.75 - Graph a function and the secant line passing through given points |
| *OTHER:* | Skill |
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| 8. Consider the function and the point  on the graph of *f*. Find the slope of the secant line passing through  and for . Round your answer to four decimal places.​

|  |  |  |
| --- | --- | --- |
|   | a.  |  |
|   | b.  |  |
|   | c.  |  |
|   | d.  |  |
|   | e.  |  |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.6b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.76 - Calculate the slope of a secant line passing through given points |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 9. Consider the function and the point on the graph of *f*. Estimate the slope *m* of the tangent line of *f* at . Round your answer to four decimal places.​

|  |  |  |
| --- | --- | --- |
|   | a.  |  |
|   | b.  |  |
|   | c.  |  |
|   | d.  |  |
|   | e.  |  |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.6c |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.77 - Estimate the slope of a tangent line |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 10. Consider the function and the point  on the graph of *f*. Graph *f* and the secant line passing through  and for .​

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | a.  | ​ | b.  | ​  |
|   | c.  | ​  | d.  | ​ |
|   | e.  | ​  |  |  |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.7a |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.75 - Graph a function and the secant line passing through given points |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 11. Consider the function and the point  on the graph of *f*. Find the slope of the secant line passing through  and for . Round your answer to one decimal place.​

|  |  |  |
| --- | --- | --- |
|   | a.  | 5.5 |
|   | b.  | 4.0 |
|   | c.  | 3.0 |
|   | d.  | 4.5 |
|   | e.  | 7.0 |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Easy |
| *REFERENCES:* | 2.1.7b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.76 - Calculate the slope of a secant line passing through given points |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 12. Consider the function and the point on the graph of *f*. Estimate the slope of the tangent line of *f* at .​

|  |  |  |
| --- | --- | --- |
|   | a.  | 6 |
|   | b.  | 3 |
|   | c.  | 4 |
|   | d.  | 2 |
|   | e.  | 5 |

|  |  |
| --- | --- |
| *ANSWER:* | d |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.7c |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.78 - Calculate the slope of secant line passing through the given points |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 13. Use the rectangles in the following graph to approximate the area of the region bounded by , , , and .​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | 3.9082 |
|   | b.  | 2.6055 |
|   | c.  | 1.9541 |
|   | d.  | 1.4656 |
|   | e.  | 0.9770 |

|  |  |
| --- | --- |
| *ANSWER:* | c |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.8a |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.79 - Estimate the area of a region using rectangles |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 14. Use the rectangles in the following graph to approximate the area of the region bounded by , , , and .​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | 0.7850 |
|   | b.  | 1.5700 |
|   | c.  | 3.1400 |
|   | d.  | 1.1775 |
|   | e.  | 1.0519 |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.8b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.79 - Estimate the area of a region using rectangles |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 15. Use the rectangles in the graph given below to approximate the area of the region bounded by , , , and . Round your answer to three decimal places.​ ​

|  |  |  |
| --- | --- | --- |
|   | a.  | 5.527 units2 |
|   | b.  | 10.417 units2 |
|   | c.  | 6.631 units2 |
|   | d.  | 11.417 units2 |
|   | e.  | 10.949 units2 |

|  |  |
| --- | --- |
| *ANSWER:* | b |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.9a |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.79 - Estimate the area of a region using rectangles |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 16. Consider the length of the graph of from  to . Approximate the length of the curve by finding the sum of the lengths of four line segments, as shown in following figure. Round your answer to two decimal places.​  ​

|  |  |  |
| --- | --- | --- |
|   | a.  | 6.11 |
|   | b.  | 8.12 |
|   | c.  | 5.66 |
|   | d.  | 8.49 |
|   | e.  | 7.11 |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.11b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.80 - Estimate the length of the curve using a piecewise linear function |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
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| 17. Consider the length of the graph of from to . Approximate the length of the curve by finding the sum of the lengths of five line segments, as shown in following figure. Round your answer to two decimal places.​  ​

|  |  |  |
| --- | --- | --- |
|   | a.  | 7.76 |
|   | b.  | 9.77 |
|   | c.  | 7.07 |
|   | d.  | 9.9 |
|   | e.  | 8.76 |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.11b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.80 - Estimate the length of the curve using a piecewise linear function |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
| *DATE CREATED:* | 1/11/2020 9:54 AM |
| *DATE MODIFIED:* | 1/11/2020 9:54 AM |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. Consider the length of the graph of from to . Approximate the length of the curve by finding the sum of the lengths of three line segments, as shown in following figure. Round your answer to two decimal places.​  ​

|  |  |  |
| --- | --- | --- |
|   | a.  | 4.49 |
|   | b.  | 6.52 |
|   | c.  | 4.24 |
|   | d.  | 7.07 |
|   | e.  | 5.51 |

|  |  |
| --- | --- |
| *ANSWER:* | a |
| *POINTS:* | 1 |
| *DIFFICULTY:* | Medium |
| *REFERENCES:* | 2.1.11b |
| *QUESTION TYPE:* | Multiple Choice |
| *HAS VARIABLES:* | True |
| *LEARNING OBJECTIVES:* | CETF.LAED.11.80 - Estimate the length of the curve using a piecewise linear function |
| *OTHER:* | Skill |
| *NOTES:* | Section 2.1 |
| *DATE CREATED:* | 1/11/2020 9:54 AM |
| *DATE MODIFIED:* | 1/11/2020 9:54 AM |

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