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| 1. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  | -3 | -2 | -1 | 0 | 1 | 2 | 3 | |  | 4 | 9 | 5 | 5 | 2 | 1.6 | 1.15 |   ​   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 1.6 | |  | c. | 9 | |  | d. | 5 | |  | e. | 1.15 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 9:53 AM | |

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| 2. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  | -3 | -2 | -1 | 0 | 1 | 2 | 3 | |  | 1 | 1 | 7 | 1 | 1 | 0.5 | 1.35 |   ​   |  |  |  | | --- | --- | --- | |  | a. | 2.5 | |  | b. | –0.5 | |  | c. | 1 | |  | d. | 1.5 | |  | e. | 0 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 9:56 AM | |

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| 3. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  | -3 | -2 | -1 | 0 | 1 | 2 | 3 | |  | 2 | 7 | 2 | –2 | 5 | 1.2 | 0.9 |   ​   |  |  |  | | --- | --- | --- | |  | a. | –5.8 | |  | b. | 8.2 | |  | c. | 0 | |  | d. | 15.2 | |  | e. | 2.4 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 10/24/2016 1:14 AM | |

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| 4. Use the graph of the function  to find .  ​    ​   |  |  |  | | --- | --- | --- | |  | a. | 11 | |  | b. | 9 | |  | c. | 16 | |  | d. | 12 | |  | e. | 10 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 9:50 AM | |

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| 5. Use the graph of the function  to find .  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 0 | |  | b. | –2 | |  | c. | –3 | |  | d. | –1 | |  | e. | 0.5 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 9:51 AM | |

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| 6. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 16 | |  | b. | –4 | |  | c. |  | |  | d. | ​14 | |  | e. | 4 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 11:00 AM | |

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| 7. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | –23 | |  | b. | –40 | |  | c. | 23 | |  | d. | 37 | |  | e. | –37 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 11:17 AM | |

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| 8. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 11:29 AM | |

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| 9. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 4 | |  | b. | 22 | |  | c. | 16 | |  | d. | 19 | |  | e. | –4 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 11:31 AM | |

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| 10. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 5 | |  | b. | –3 | |  | c. | 4 | |  | d. | 3 | |  | e. | 8 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 11:34 AM | |

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| 11. Choose the graph of the function , domain  from the following:  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ​ | b. | ​ | |  | c. | ​ | d. | ​ |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/6/2016 9:58 AM | |

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| 12. Choose the graph of the function , domain from the following:  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ​ | b. | ​ | |  | c. | ​ | d. | ​ |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 10/24/2016 1:17 AM | |

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| 13. Choose the graph of the function , domain from the following:  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ​ | b. | ​ | |  | c. | ​ | d. | ​ |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:01 AM | |

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| 14. Choose the graph of the function , domain from the following:  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ​ | b. | ​ | |  | c. | ​ | d. | ​ |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:03 AM | |

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| 15. Use technology (such as spreadsheet web site utilities, or a graphing calculator) to evaluate the function for .  ​  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | –19.288 | |  | b. | –11.288 | |  | c. | 47.512 | |  | d. | –18.68 | |  | e. | 39.512 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 12:21 PM | |

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| 16. Use technology (such as spreadsheet web site utilities, or a graphing calculator) to evaluate the function for .  ​  ​  Round the answer to four decimal places if necessary.  ​   |  |  |  | | --- | --- | --- | |  | a. | 1 | |  | b. | 1.4414 | |  | c. | 15.8000 | |  | d. | 0.6938 | |  | e. | 0.4309 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/29/2016 12:24 PM | |

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| 17. Function  is .  ​  Find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 126 | |  | b. | 3 | |  | c. | 117 | |  | d. | 99 | |  | e. | 108 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/30/2016 6:40 AM | |

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| 18. ​Function  is .  ​  Find .  ​​   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | –81 | |  | c. | –83 | |  | d. | –2 | |  | e. | 28 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:06 AM | |

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| 19. ​Function  is .  ​  Find .  ​​​   |  |  |  | | --- | --- | --- | |  | a. | 81 | |  | b. | 3 | |  | c. | ​4 | |  | d. | –3 | |  | e. | No solution |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 3/30/2016 7:08 AM | | *DATE MODIFIED:* | 5/5/2016 10:07 AM | |

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| 20. Function is .  ​  Find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 152 | |  | b. | 156 | |  | c. | 48 | |  | d. | 38 | |  | e. | 168 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 3/30/2016 7:32 AM | |

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| 21. Graph shows the number of sports utility vehicles  sold in the United States.  represents sales in year *t* in thousands of vehicles. Find .  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 950,000 | |  | b. | ​450,000 | |  | c. | 700,000 | |  | d. | 750,000 | |  | e. | 900,000 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 11/2/2016 4:04 PM | |

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| 22. Graph shows the number of sports utility vehicles  sold in the United States.  represents sales in year *t* in thousands of vehicles. Find .  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 550,000 | |  | b. | 500,000 | |  | c. | 650,000 | |  | d. | 950,000 | |  | e. | 750,000 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 11/2/2016 2:42 PM | |

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| 23. The value of U.S. trade with China from 1994 through 2002 can be approximated by  billion dollars (*t* is time in years since 1994).  ​  Find an appropriate domain of *C*.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:26 AM | |

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| 24. The number of research articles in *Physics Review* that were written by researchers in the U.S. from 1983 through 1996 can be approximated by  billion dollars (*t* is time in years since 1983).  ​  Find an appropriate domain of *A*.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:29 AM | |

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| 25. The processor speed, in megahertz, of Intel processors could be approximated by the function of time *t* in years since the start of 1995.  ​  ​  Use the model to estimate when processor speeds first hit 3.2 gigahertz (1 gigahertz = 1,000 megahertz).  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:33 AM | |

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| 26. The value of the Conference Board Index of 10 economic indicators in the U.S. could be approximated by the function of time *t* in months since the end of December 2002.  ​  ​  Use the model to estimate when - prior to March, 2004 - the index was 113.  ​   |  |  |  | | --- | --- | --- | |  | a. | months | |  | b. | months | |  | c. | months | |  | d. | months | |  | e. | months |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:36 AM | |

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| 27. The percentage  of children who are able to speak in at least single words by the age of *​t* months can be approximated by the equation.  ​  ​  What percent of children are able to speak in at least single words by the age of 14 months? Round to the nearest percent.  ​   |  |  |  | | --- | --- | --- | |  | a. | 67% | |  | b. | 80% | |  | c. | 55% | |  | d. | 73% | |  | e. | 20% |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:38 AM | |

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| 28. The percentage  of children who are able to speak in at least single words by the age of *t* months can be approximated by the equation.  ​  ​  By what age are 70% of children speaking in at least single words? Round your answer to the nearest month.  ​   |  |  |  | | --- | --- | --- | |  | a. | 16 | |  | b. | 7 | |  | c. | 11 | |  | d. | 5 | |  | e. | 8 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:40 AM | |

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| 29. If the revenue *​R* is specified as a function of selling price *​s*, which variable is independent?  ​   |  |  |  | | --- | --- | --- | |  | a. | *​R* | |  | b. | *​s* |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:42 AM | |

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| 30. Write the equation  using function notation.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. | ​ |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:44 AM | |

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| 31. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | ***f*** | -3 | -2 | -1 | 0 | 1 | 2 | 3 | | ***f*(*x*)** | 1 | 5 | 3 | 1 | 4 | 0.7 | 0.95 |  |  |  | | --- | --- | | *ANSWER:* | 4 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:46 AM | |

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| 32. Given , find .   |  |  | | --- | --- | | *ANSWER:* | 6 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:48 AM | |

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| 33. Given , find .   |  |  | | --- | --- | | *ANSWER:* | –9 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:49 AM | |

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| 34. Given , find .   |  |  | | --- | --- | | *ANSWER:* | –2 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:51 AM | |

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| 35. Given , find .   |  |  | | --- | --- | | *ANSWER:* | 5 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:52 AM | |

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| *Match each function with the corresponding graph.*  ​   |  |  | | --- | --- | | a. | , | | b. | , | | c. | , |  |  |  | | --- | --- | | *QUESTION TYPE:* | Matching | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:59 AM | |

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| 36. ​   |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | |

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| 37. ​   |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | |

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| 38. ​   |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | |

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| If the income *I* is specified as a function of selling price *s*, which variable is independent and which one is dependent?  ​  *Choose the correct letter for each question.*  ​   |  |  | | --- | --- | | a. | *s* | | b. | *I* |  |  |  | | --- | --- | | *QUESTION TYPE:* | Matching | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 10/24/2016 1:29 AM | |

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| 39. Dependent variable   |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | |

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| 40. Independent variable   |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | |

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| 41. Given , find .   |  |  | | --- | --- | | *ANSWER:* |  | | *POINTS:* | 1 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:48 PM | | *DATE MODIFIED:* | 5/5/2016 10:54 AM | |