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| 1. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | *x* | -3 | -2 | -1 | 0 | 1 | 2 | 3 | | *f(x)* | 3 | 3 | 5 | 2 | 1 | 0.5 | 1.55 |   ​   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 1.55 | |  | c. | 3 | |  | d. | 1 | |  | e. | 0.5 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 3:53 AM | |

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| 2. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | *x* | -3 | -2 | -1 | 0 | 1 | 2 | 3 | | *f(x)* | 5 | 6 | 6 | 3 | 2 | 1.5 | 1.6 |   ​​   |  |  |  | | --- | --- | --- | |  | a. | –1.5 | |  | b. | 3 | |  | c. | 1.5 | |  | d. | –6 | |  | e. | 6 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 3/31/2016 5:49 AM | | *DATE MODIFIED:* | 10/17/2016 5:31 AM | |

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| 3. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | *x* | -3 | -2 | -1 | 0 | 1 | 2 | 3 | | *f(x)* | 1 | 5 | 1 | –2 | 1 | 1 | 0.1 |   ​​   |  |  |  | | --- | --- | --- | |  | a. | 4 | |  | b. | –5 | |  | c. | –4 | |  | d. | –9 | |  | e. | 2 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:01 AM | |

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| 4. Use the graph of the function  *f*  to find .  ​  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 6 | |  | b. | 5 | |  | c. | 4 | |  | d. | 11 | |  | e. | 7 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:10 AM | |

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| 5. Use the graph of the function *f* to find .  ​  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 0 | |  | c. | –1 | |  | d. | 1 | |  | e. | –0.5 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 5/18/2016 6:13 AM | |

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| 6. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | –24 | |  | b. | 66 | |  | c. | 24 | |  | d. | 36 | |  | e. | –36 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/31/2016 4:24 AM | |

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| 7. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/31/2016 4:27 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 3:41 PM | | *DATE MODIFIED:* | 3/31/2016 4:21 AM | |

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| 9. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | –31 | |  | b. | 1 | |  | c. | –19 | |  | d. | 31 | |  | e. | –23 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/31/2016 4:16 AM | |

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| 10. Given , find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 6 | |  | b. | –2 | |  | c. | 4 | |  | d. | 2 | |  | e. | 12 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/31/2016 4:14 AM | |

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| 11. Choose the graph of the function , domain from the following:  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ​ | b. | ​ | |  | c. | ​ | d. | ​ |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 5/18/2016 6:23 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 3:41 PM | | *DATE MODIFIED:* | 5/18/2016 6:24 AM | |

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| 13. Choose the graph of the function , domain from the following:  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | ​ | b. | ​ | |  | c. | ​ | d. | ​ |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:22 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 3:41 PM | | *DATE MODIFIED:* | 5/18/2016 6:30 AM | |

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| 15. Use technology (such as spreadsheet web site utilities, or a graphing calculator) to evaluate the function for .  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | –15.8 | |  | b. | –1.8 | |  | c. | 64.2 | |  | d. | –17.2 | |  | e. | 50.2 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 10:35 AM | |

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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. | 0.8572 | |  | b. | 1.1666 | |  | c. | 0.6721 | |  | d. | 1 | |  | e. | 28.4 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 10:32 AM | |

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| 17. Function *f*  is .  ​  Find .  ​​   |  |  |  | | --- | --- | --- | |  | a. | 63 | |  | b. | 57 | |  | c. | 7 | |  | d. | 60 | |  | e. | 54 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:26 AM | |

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| 18. Function *f*  is .  ​  Find .  ​​   |  |  |  | | --- | --- | --- | |  | a. | ​–208 | |  | b. | 34 | |  | c. | ​–212 | |  | d. | 4 | |  | e. | ​–4 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 10:22 AM | |

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| 19. Function *f*  is .  ​  Find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 6 | |  | b. | No solution | |  | c. | 7 | |  | d. | ​–6 | |  | e. | 1296 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:30 AM | |

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| 20. Function *f* is .  ​  Find .  ​   |  |  |  | | --- | --- | --- | |  | a. | 27 | |  | b. | 31 | |  | c. | 30 | |  | d. | 18 | |  | e. | 42 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:59 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. | 250 | |  | b. | 450 | |  | c. | 400 | |  | d. | 350 | |  | e. | 550 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 5/24/2016 3:20 AM | |

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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. | 250 | |  | b. | 500 | |  | c. | 400 | |  | d. | 450 | |  | e. | 550 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 3/30/2016 8:31 AM | | *DATE MODIFIED:* | 5/18/2016 6:56 AM | |

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| 23. The value of U.S. trade with China from 1994 through 2004 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 3:41 PM | | *DATE MODIFIED:* | 4/4/2016 8:33 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  hundred articles (*t* is time in years since 1983).  ​  Find an appropriate domain of *A*.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:40 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:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:02 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 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 5:24 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 12 months? Round to the nearest percent.  ​   |  |  |  | | --- | --- | --- | |  | a. | 8% | |  | b. | 67% | |  | c. | 92% | |  | d. | 85% | |  | e. | 79% |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:12 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 80% of children speaking in at least single words? Round your answer to the nearest month.  ​   |  |  |  | | --- | --- | --- | |  | a. | 10 | |  | b. | 6 | |  | c. | 7 | |  | d. | 15 | |  | e. | 4 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:15 AM | |

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| 29. Write the equation using function notation.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:23 AM | |

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| 30. If the revenue *R* is specified as a function of time *t*, which variable is independent?  ​   |  |  |  | | --- | --- | --- | |  | a. | *​t* | |  | b. | *​R* |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:18 AM | |

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| 31. Based on the following table, find .   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | *x* | -3 | -2 | -1 | 0 | 1 | 2 | 3 | | *f(x)* | 5 | 2 | 5 | –2 | 1 | 0.4 | 1.5 |   ​   |  |  | | --- | --- | | *ANSWER:* | 5 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:46 AM | |

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| 32. Given , find .   |  |  | | --- | --- | | *ANSWER:* | 4 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:34 AM | |

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| 33. Given , find .   |  |  | | --- | --- | | *ANSWER:* | –20 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:35 AM | |

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| 34. Given , find .   |  |  | | --- | --- | | *ANSWER:* | –3 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:38 AM | |

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| 35. Given , find .   |  |  | | --- | --- | | *ANSWER:* | –1 | | *POINTS:* | 1 | | *QUESTION TYPE:* | Numeric Response | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:38 AM | |

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| 36. Given , find .   |  |  | | --- | --- | | *ANSWER:* |  | | *POINTS:* | 1 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | True | | *DATE CREATED:* | 2/10/2016 3:41 PM | | *DATE MODIFIED:* | 3/30/2016 9:41 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 3:41 PM | | *DATE MODIFIED:* | 5/18/2016 7:01 AM | |

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

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

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| 39. ​   |  |  | | --- | --- | | *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 3:41 PM | | *DATE MODIFIED:* | 10/17/2016 4:54 AM | |

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| 40. Dependent variable   |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | |

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| 41. Independent variable   |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | |