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| 1. Which of the following is the correct graph of ?  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 2. Which of the following is the correct graph of ?  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | e | |

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| 3. Which of the following is the correct graph of ?  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 4. Which of the following is the correct graph of ?  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 5. Find all intercepts:  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | *x*-intercepts: (8,0), (–4,0); *y*-intercepts: (0, 8), (0, 4) | |  | b. | *x*-intercept: (32, 0); *y*-intercepts: (0, 8), (0, 4) | |  | c. | *x*-intercepts: (8, 0), (–4,0); *y*-intercept: (0, –32) | |  | d. | *x*-intercepts: (8, 0), (–4,0); *y*-intercepts: (0, –32), (0, 32) | |  | e. | *x*-intercept: (–4, 0); *y*-intercept: (0, –32) |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 6. Find all intercepts:  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | *x*-intercepts: (–3, 0), (3, 0); no *y*-intercept | |  | b. | *x*-intercept: (0, 0); *y*-intercepts: (0, 0), (0, –3), (0, 3) | |  | c. | *x*-intercepts: (0, 0), (–3, 0), (3, 0); *y*-intercept: (0, 0) | |  | d. | *x*-intercepts: (0, 0), (–3, 0), (3, 0); no *y*-intercept | |  | e. | *x*-intercepts: (–3, 0), (3, 0); *y*-intercept: (0, 0) |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 7. Find all intercepts:  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | *x*-intercepts: (3, 0), (–4, 0), (4, 0); *y*-intercepts: (0, 0), (0, –12) | |  | b. | *x*-intercepts: (3, 0), (4, 0); *y*-intercept: (0, –12) | |  | c. | *x*-intercepts: (3, 0), (4, 0); *y*-intercept: (0, 12) | |  | d. | *x*-intercepts: (3, 0), (–4, 0), (4, 0); *y*-intercept: (0, –12) | |  | e. | *x*-intercepts: (3, 0), (–4, 0), (4, 0); *y*-intercept: (0, 12) |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 8. Test for symmetry with respect to each axis and to the origin.  ​   |  |  |  | | --- | --- | --- | |  | a. | symmetric with respect to the origin | |  | b. | symmetric with respect to the *x*-axis | |  | c. | symmetric with respect to the *y*-axis | |  | d. | no symmetry | |  | e. | a, b, and c |  |  |  | | --- | --- | | *ANSWER:* | e | |

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| 9. Test for symmetry with respect to each axis and to the origin.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | symmetric with respect to the origin | |  | b. | symmetric with respect to the *y*-axis | |  | c. | symmetric with respect to the *x*-axis | |  | d. | both B and C | |  | e. | no symmetry |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 10. Sketch the graph of the equation:  ​  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. | non of the above |  |  |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 11. Sketch the graph of the equation:  ​  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 12. Sketch the graph of the equation:  ​  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. | non of the above |  |  |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 13. Find the points of intersection of the graphs of the equations:  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 14. The table given below shows the Consumer Price Index (CPI) for selected years. Use the regression capabilities of a graphing utility to find a mathematical model of the form for the data. In the model, represents the CPI and represents the year, with corresponding to 1975. Round all numerical values in your answer to three decimal places.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Year | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | | CPI | 56.5 | 80.4 | 105.5 | 130.7 | 152.4 | 171.6 | 195.6 |   ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 15. The table given below shows the Consumer Price Index (CPI) for selected years. Use a graphing utility to plot the data and graph the model , where *y* represents the CPI and *t* represents the year with corresponding to 1975.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Year | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | | CPI | 55.5 | 80.6 | 105.5 | 135.5 | 160.5 | 172.5 | 150.5 |   ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 16. The table given below shows the Consumer Price Index (CPI) for selected years. The mathematical model for the data given below is where *y* represents the CPI and *t* represents the year, with corresponding to 1975. Use the model to predict the CPI for the year 2010. Round your answer to the nearest integer.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Year | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | | CPI | 57.8 | 80.6 | 103.6 | 130.7 | 152.4 | 170.5 | 192.5 |   ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | e | |

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| 17. Find the sales necessary to break even  if the cost  of producing  units is and the revenue *R* for selling *x* units is . Round your answer to the nearest integer.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 18. The resistance *y* in ohms of 1000 feet of solid metal wire at  can be approximated by the model where *x* is the diameter of the wire in mils (0.001 in). Use a graphing utility to graph the model .  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 19.  The resistance *y* in ohms of 1000 feet of solid metal wire at  can be approximated by the model ,  where is the diameter of the wire in mils (0.001 in). If the diameter of the wire is doubled, the resistance is changed by approximately what factor? In determining your answer, you can ignore the constant –0.38.  ​   |  |  |  | | --- | --- | --- | |  | a. | 5 | |  | b. |  | |  | c. | 4 | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | d | |