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| 1. Select a verbal description of the algebraic expression without using the variable.  ​  *x* + 5  ​   |  |  |  | | --- | --- | --- | |  | a. | A number divided by 5 | |  | b. | A number decreased by 5 | |  | c. | A number increased by 5 | |  | d. | A number multiply by 5 | |  | e. | None of the above |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.9 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/19/2014 8:20 AM | |

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| 2. Select a verbal description of the algebraic expression without using the variable.  ​  *t* - 5  ​   |  |  |  | | --- | --- | --- | |  | a. | A number increased by 5 | |  | b. | A number decreased by 5 | |  | c. | A number divided by 5 | |  | d. | A number multiply by 5 | |  | e. | None of the above |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.10 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/19/2014 8:21 AM | |

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| 3. Select a verbal description of the algebraic expression without using the variable.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | A number multiply by 6 | |  | b. | A number divided by 6 | |  | c. | A number decreased by 6 | |  | d. | A number increased by 6 | |  | e. | None of the above |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.11 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/19/2014 8:22 AM | |

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| 4. Select a verbal description of the algebraic expression without using the variable.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | A number increased by 7 is divided by 2. | |  | b. | A number divided by 7 is increased by 7. | |  | c. | A number decreased by 7 is divided by 2. | |  | d. | A number increased by 2 is divided by 7. | |  | e. | A number decreased by 2 is divided by 7. |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.13 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/14/2015 12:25 AM | |

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| 5. Select a verbal description of the algebraic expression without using the variable.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | Positive 5 is multiplied by a number increased by 9. | |  | b. | Positive 9 is multiplied by a number increased by 5. | |  | c. | Positive 5 is multiplied by a number decreased by 9. | |  | d. | Negative 9 is multiplied by a number increased by 5. | |  | e. | Negative 5 is multiplied by a number decreased by 9. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.15 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/19/2014 8:24 AM | |

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| 6. Select a verbal description of the algebraic expression without using the variable.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 5 is multiplied by a number decreased by 6 and the product is divided by that number. | |  | b. | A number increased by 5 and divided by that number. | |  | c. | 5 is multiplied by a number increased by 6 and the product is divided by that number. | |  | d. | 6 is multiplied by a number decreased by 5 and the product is divided by that number. | |  | e. | 6 is multiplied by a number increased by 5 and the product is divided by that number. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.17 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 10/22/2014 4:40 AM | |

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| 7. Select a verbal description of the algebraic expression without using the variable.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | 4 is multiplied by a number and that product is multiplied by  the number increased by 14. | |  | b. | 14 is multiplied by a number and that product is multiplied by  the number decreased by 4. | |  | c. | 4 is multiplied by a number and that product is multiplied by  the number decreased by 14. | |  | d. | 14 is multiplied by a number and that product is multiplied by  the number increased by 4. | |  | e. | None of the above |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.16 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/19/2014 8:27 AM | |

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| 8. Select a verbal description of the algebraic expression without using the variable.  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | A number decreased by 5 is divided by 16. | |  | b. | A number decreased by 16 is divided by 5. | |  | c. | A number increased by 5 is divided by 16. | |  | d. | A number increased by 16 is divided by 5. | |  | e. | None of the above |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.14 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/19/2014 8:28 AM | |

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| 9. Solve the following percent equation.  ​  What is 150% of 360?  ​   |  |  |  | | --- | --- | --- | |  | a. | 539 | |  | b. | 541 | |  | c. | 542 | |  | d. | 540 | |  | e. | 538 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.44 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/14/2015 12:40 AM | |

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| 10. Select an algebraic expression for the verbal description.  ​  The distance traveled in *t* hours by a car traveling at 52 miles per hour.  ​   |  |  |  | | --- | --- | --- | |  | a. | 52*t* | |  | b. |  | |  | c. | *t* | |  | d. | 52 | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.23 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 1:57 AM | |

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| 11. Select an algebraic expression for the verbal description.  ​  The travel time for a plane traveling at a rate of *r* kilometers per hour for 600 kilometers.  ​   |  |  |  | | --- | --- | --- | |  | a. | 600 - *r* | |  | b. | 600*r* | |  | c. |  | |  | d. |  | |  | e. | 600 + *r* |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.24 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 1:57 AM | |

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| 12. Select an algebraic expression for the verbal description.  ​  The amount of acid in *x* liters of a 40% acid solution.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.25 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 1:58 AM | |

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| 13. Select an algebraic expression for the verbal description.  ​  The perimeter of a rectangle with a width *x* and a length that is two times the width.  ​   |  |  |  | | --- | --- | --- | |  | a. | 2*x* | |  | b. | 4*x* | |  | c. | 6*x* | |  | d. | 7*x* | |  | e. | 11*x* |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.27 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 4:12 AM | |

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| 14. Select an algebraic expression for the verbal description.  ​  The area of a triangle with base 16 inches and height *h* inches.  ​   |  |  |  | | --- | --- | --- | |  | a. | 9*h* | |  | b. | 32*h* | |  | c. | 8*h* | |  | d. | 64*h* | |  | e. | 16*h* |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.28 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 1:58 AM | |

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| 15. Select an algebraic expression for the verbal description.  ​  The total cost of producing *x* units for which the fixed costs are $2,400 and the cost per unit is $10.  ​   |  |  |  | | --- | --- | --- | |  | a. | 2,400 + 10*x* | |  | b. | 10*x* + 2,400*x* | |  | c. | 10 + 2,400*x* | |  | d. | 2,400 - 10*x* | |  | e. | 10*x* - 2,400*x* |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.29 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 4:18 AM | |

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| 16. Translate the following statement into an algebraic expression or equation.  ​  Twenty percent of the list price *L.*  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. | ​0.2 *L* | |  | c. | ​ | |  | d. | ​ | |  | e. | 0.2  ​ |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.31 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 4:14 AM | |

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| 17. Translate the following statement into an algebraic expression or equation.  ​  The percent function *p* of 674 that is represented by the number *N.*  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. | None of the above |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.33 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:01 AM | |

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| 18. Select a mathematical model for the following problem and solve.  ​  The sum of two consecutive natural numbers is 527. Find the numbers.  ​   |  |  |  | | --- | --- | --- | |  | a. | 267, 268 | |  | b. | 265, 266 | |  | c. | 269, 270 | |  | d. | 263, 264 | |  | e. | 271, 272 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.37 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 1:26 AM | |

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| 19. Select a mathematical model for the following problem and solve.  ​  One positive number is 7 times another number. The difference between the two numbers is 156. Find the numbers.  ​   |  |  |  | | --- | --- | --- | |  | a. | 49, 107 | |  | b. | 26, 182 | |  | c. | 20, 176 | |  | d. | 50, 106 | |  | e. | 30, 126 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.39 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 4:19 AM | |

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| 20. Solve the following percent equation.  ​  What is 40% of 49?  ​   |  |  |  | | --- | --- | --- | |  | a. | 20.6 | |  | b. | 19.6 | |  | c. | 17.6 | |  | d. | 18.6 | |  | e. | 21.6 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.43 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:19 AM | |

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| 21. Solve the following percent equation.  ​  460 is what percent of 2,000? (Round the answer to unit digit if necessary.)  ​   |  |  |  | | --- | --- | --- | |  | a. | 23% | |  | b. | 24% | |  | c. | 21% | |  | d. | 25% | |  | e. | 22% |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.45 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:23 AM | |

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| 22. Solve the following percent equation.  ​  14 is % of what number?  ​   |  |  |  | | --- | --- | --- | |  | a. | 5,700 | |  | b. | 5,400 | |  | c. | 5,600 | |  | d. | 5,500 | |  | e. | 5,800 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.47 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 10/22/2014 5:48 AM | |

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| 23. The price of a swimming pool has been discounted 12.5%. The sale price is $1,270.75. Find the original list price of the pool. (Round the answer to the nearest cent.)  ​   |  |  |  | | --- | --- | --- | |  | a. | $1,454.29 | |  | b. | $1,455.29 | |  | c. | $1,449.29 | |  | d. | $1,452.29 | |  | e. | $1,457.29 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.50 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:32 AM | |

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| 24. A family has annual loan payments equaling 40% of their annual income. During the year, their loan payments total $13,125.50. What is their annual income? (Round the answer to the nearest cent.)  ​   |  |  |  | | --- | --- | --- | |  | a. | $32,913.75 | |  | b. | $32,713.75 | |  | c. | $33,013.75 | |  | d. | $32,813.75 | |  | e. | $32,613.75 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.51 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:33 AM | |

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| 25. The price of an item is given for 2000 and 2007. Find the percent change for the item. (Round the answer to one decimal place.)  ​   |  |  |  | | --- | --- | --- | | *Item* | 2000 | 2007 | | Gallon of regular unleaded Gasoline | $1.57 | $2.3 |   ​   |  |  |  | | --- | --- | --- | |  | a. | 46.5% decrease | |  | b. | 46.5% increase | |  | c. | 45.5% increase | |  | d. | 47.5% decrease | |  | e. | 48.5% increase |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.53 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:34 AM | |

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| 26. The price of an item is given for 2000 and 2007. Find the percent change for the item. (Round the answer to one decimal place.)  ​   |  |  |  | | --- | --- | --- | | *Item* | 2000 | 2007 | | Pound of 100% ground beef | $1.61 | $2.25 |   ​   |  |  |  | | --- | --- | --- | |  | a. | 38.8% decrease | |  | b. | 40.8% increase | |  | c. | 39.8% decrease | |  | d. | 41.8% increase | |  | e. | 39.8% increase |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.55 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:36 AM | |

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| 27. The price of item is given for 2000 and 2007. Find the percent change for the item. (Round the answer to one decimal place.)  ​   |  |  |  | | --- | --- | --- | | *Item* | 2000 | 2007 | | Monthly bill for cellular phone service | $43.27 | $49.79 |   ​   |  |  |  | | --- | --- | --- | |  | a. | 17.1% decrease | |  | b. | 15.1% decrease | |  | c. | 16.1% increase | |  | d. | 15.1% increase | |  | e. | 14.1% increase |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.56 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:37 AM | |

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| 28. A room is 2.5 times as long as it is wide, and its perimeter is 15 meters. Write the length *l* in terms of the width *w* and write an equation for the perimeter in terms of *w.*  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.57 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:39 AM | |

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| 29. To get an A in a course, you must have an average of at least 70 on four tests of 100 points each. The scores on your first three tests were 89, 92, and 84. What must you score on the fourth test to get an A for the course? Find the minimum possible value.  ​   |  |  |  | | --- | --- | --- | |  | a. | 14 | |  | b. | 16 | |  | c. | 17 | |  | d. | 13 | |  | e. | 15 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.59 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:43 AM | |

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| 30. You are taking a course that has four tests. The first three tests are 100 points each and the fourth test is 200 points. To get an A in the course, you must have an average of at least 90% on the four tests. Your scores on the first three tests were 88, 92, and 82. What must you score on the fourth test to get an A for the course? Find the minimum possible value.  ​   |  |  |  | | --- | --- | --- | |  | a. | 187 | |  | b. | 188 | |  | c. | 190 | |  | d. | 186 | |  | e. | 189 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.60 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 2:47 AM | |

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| 31. Students are traveling in two cars to a football game 131 miles away. The first car leaves on time and travels at an average speed of 43 miles per hour. The second car starts  hour later and travels at an average speed of 52 miles per hour. How long will it take the second car to catch up to the first car? Round the answer to two decimal places.  ​   |  |  |  | | --- | --- | --- | |  | a. | 0.35 hours after the first car leaves. | |  | b. | 3.89 hours after the first car leaves. | |  | c. | 2.89 hours after the first car leaves. | |  | d. | 4.89 hours after the first car leaves. | |  | e. | 6.89 hours after the first car leaves. |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.62 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 3:48 AM | |

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| 32. A truck driver traveled at an average speed of 45 miles per hour on a 100-mile trip to pick up a load of freight. On the return trip (with the truck fully loaded), the average speed was 40 miles per hour. What was the average speed for the round trip? Round the answer to one decimal place.  ​   |  |  |  | | --- | --- | --- | |  | a. | About 43.4 mi/h | |  | b. | About 40.4 mi/h | |  | c. | About 44.4 mi/h | |  | d. | About 42.4 mi/h | |  | e. | About 41.4 mi/h |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.63 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 3:53 AM | |

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| 33. An executive flew in the corporate jet to a meeting in a city 1,200 kilometers away. After traveling the same amount of time on the return flight, the pilot mentioned that they still had 500 kilometers to go. The air speed of the plane was 600 kilometers per hour. How fast was the wind blowing? (Assume that the wind direction was parallel to the flight path and constant all day.)  ​   |  |  |  | | --- | --- | --- | |  | a. | km/h | |  | b. | km/h | |  | c. | km/h | |  | d. | km/h | |  | e. | km/h |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.64 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:34 AM | |

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| 34. To obtain the height of a tree (see figure), you measure the tree’s shadow and find that it is 2 meters long. You also measure the shadow of a five-meter lamppost and find that it is 73 centimeters long. How tall is the tree?  ​  ​   |  |  |  | | --- | --- | --- | |  | a. | m | |  | b. | m | |  | c. | m | |  | d. | m | |  | e. | m |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.68 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:34 AM | |

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| 35. A nursery has $50,000 of inventory in dogwood trees and red maple trees. The profit on a dogwood tree is 23% and the profit on a red maple tree is 10%. The profit for the entire stock is 17%. How much was invested in each type of tree?  ​   |  |  |  | | --- | --- | --- | |  | a. | Red maple: $23,277; Dogwood: $26,923 | |  | b. | Red maple: $23,077; Dogwood: $27,123 | |  | c. | Red maple: $23,077; Dogwood: $26,923 | |  | d. | Red maple: $23,077; Dogwood: $23,277 | |  | e. | Red maple: $27,123; Dogwood: $26,923 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.73 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:35 AM | |

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| 36. Solve the following percent equation.  ​  476 is what percent of 350?  ​   |  |  |  | | --- | --- | --- | |  | a. | 136% | |  | b. | 135% | |  | c. | 137% | |  | d. | 134% | |  | e. | 138% |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.46 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 2:45 AM | |

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| 37. A 100% concentrate is to be mixed with a mixture having a concentration of 42% to obtain 54 gallons of a mixture with a concentration of 75%. How much of the 100% concentrate will be needed?  ​   |  |  |  | | --- | --- | --- | |  | a. | About 29.7 gal | |  | b. | About 32.7 gal | |  | c. | About 28.7 gal | |  | d. | About 31.7 gal | |  | e. | About 30.7 gal |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.76 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:35 AM | |

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| 38. A forester mixes gasoline and oil to make 2 gallons of mixture for his two-cycle chainsaw engine. This mixture is 31 parts gasoline and 1 part two-cycle oil. How much gasoline must be added to bring the mixture to 45 parts gasoline and 1 part oil?  ​   |  |  |  | | --- | --- | --- | |  | a. | About 1.08 gal | |  | b. | About 0.88 gal | |  | c. | About 1.18 gal | |  | d. | About 0.98 gal | |  | e. | About 1.28 gal |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.77 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:36 AM | |

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| 39. A grocer mixes peanuts that cost $4.49 per pound and walnuts that cost $5.69 per pound to make 100 pounds of a mixture that costs $5.21 per pound. How much of each kind of nut is put into the mixture?  ​   |  |  |  | | --- | --- | --- | |  | a. | 40 lb of peanuts, 40 lb of walnuts | |  | b. | 60 lb of peanuts, 60 lb of walnuts | |  | c. | 50 lb of peanuts, 60 lb of walnuts | |  | d. | 40 lb of peanuts, 60 lb of walnuts | |  | e. | 60 lb of peanuts, 40 lb of walnuts |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.78 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:36 AM | |

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| 40. An outdoor furniture manufacturer has fixed costs of $10,000 per month and average variable costs of $16.75 per unit manufactured. The company has $170,000 available to cover the monthly costs. How many units can the company manufacture? (*Fixed costs* are those that occur regardless of the level of production. *Variable costs* depend on the level of production.) (Round the answer to unit digit.)  ​   |  |  |  | | --- | --- | --- | |  | a. | 9,562 units | |  | b. | 9,572 units | |  | c. | 9,542 units | |  | d. | 9,552 units | |  | e. | 9,532 units |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.79 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:37 AM | |

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| 41. A plumbing supply company has fixed costs of $30,000 per month and average variable costs of $9.5 per unit manufactured. The company has $60,000 available to cover the monthly costs. How many units can the company manufacture? (*Fixed costs* are those that occur regardless of the level of production. *Variable costs* depend on the level of production.) (Round the answer to unit digit.)  ​   |  |  |  | | --- | --- | --- | |  | a. | 3,178 units | |  | b. | 3,188 units | |  | c. | 3,158 units | |  | d. | 3,168 units | |  | e. | 3,198 units |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.80 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 4/9/2021 5:38 AM | |

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| 42. You have a uniform beam of length *L* with a fulcrum *x* feet from one end (see figure).  Objects with weights *W*1 and *W*2 are placed at opposite ends of the beam. The beam will balance when *W*1*x* = *W*2(*L*- *x*). Find *x* such that the beam will balance.  ​  Two children weighing *W*1 = 28 pounds and *W*2 = 56 pounds are playing on a seesaw that is 30 feet long. (Round the answer to unit digit.)  ​   |  |  |  | | --- | --- | --- | |  | a. | *x* = 22 feet from the 28 pounds child | |  | b. | *x* = 23 feet from the 28 pounds child | |  | c. | *x* = 21 feet from the 56 pounds child | |  | d. | *x* = 20 feet from the 28 pounds child | |  | e. | *x* = 19 feet from the 28 pounds child |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.93 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 4:24 AM | |

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| 43. You have a uniform beam of length *L* with a fulcrum *x* feet from one end (see figure). Objects with weights *W*1 and *W*2 are placed at opposite ends of the beam. The beam will balance when *W*1*x* = *W*2(*L* - *x*). Find *x* such that the beam will balance.  ​  A person weighing *W*1 = 210 pounds is attempting to move a rock weighing *W*2 = 740 pounds with a bar that is 6  feet long.  ​   |  |  |  | | --- | --- | --- | |  | a. | *x* = feet from the person | |  | b. | *x* = feet from the person | |  | c. | *x* = feet from the person | |  | d. | *x* =  feet from the person | |  | e. | *x* = 740 feet from the person |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.94 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 3:58 AM | |

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| 44. A billiard ball has a volume of 5.95 cubic inches. Find the radius of a billiard ball.  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. | ​ | |  | c. | ​ | |  | d. | ​ | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.95 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 3:27 AM | |

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| 45. The diameter of a cylindrical propane gas tank is 8 feet. The total volume of the tank is 603.6 cubic feet. Find the length of the tank. (Round the answer to tens digit.)  ​   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.96 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 3:59 AM | |

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| 46. The average daily temperature in San Diego, California is 62.1°F. What is San Diego’s average daily temperature in degrees Celsius? (Round the answer to unit digit.)    ​   |  |  |  | | --- | --- | --- | |  | a. | 19°C | |  | b. | 17°C | |  | c. | 18°C | |  | d. | 16°C | |  | e. | 15°C |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.97 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 4:16 AM | |

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| 47. The average daily temperature in Duluth, Minnesota is 38.1°F. What is Duluth’s average daily temperature in degrees Celsius? (Round the answer to unit digit.)    ​   |  |  |  | | --- | --- | --- | |  | a. | 7°C | |  | b. | 4°C | |  | c. | 6°C | |  | d. | 5°C | |  | e. | 3°C |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.98 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 4:19 AM | |

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| 48. Solve the following percent equation.  ​  66 is 40% of what number?  ​   |  |  |  | | --- | --- | --- | |  | a. | 240 | |  | b. | 190 | |  | c. | 215 | |  | d. | 265 | |  | e. | 165 |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.48 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 9/22/2014 3:41 AM | |

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| 49. Translate the following statement into an algebraic expression or equation.  ​  The amount of water in *q* quarts of a liquid that is 31% water.  ​   |  |  |  | | --- | --- | --- | |  | a. | 31*q* | |  | b. | 0.31 + *q* | |  | c. |  | |  | d. | 0.31 - *q* | |  | e. | 0.31*q* |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.32 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 4:20 AM | |

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| 50. Determine whether the statement is true or false. Justify your answer.  ​  "4 less than *z* cubed divided by the difference of *z* squared and 7" can be written as .  ​   |  |  |  | | --- | --- | --- | |  | a. | False. The expression should be . | |  | b. | True. The expression should be . |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *REFERENCES:* | 1.3.101 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *STUDENT ENTRY MODE:* | Basic | | *DATE CREATED:* | 6/10/2014 4:15 PM | | *DATE MODIFIED:* | 5/21/2021 4:22 AM | |