**Algebra I CP Midterm**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. Identify the graph that displays the height of a ping pong ball after it is dropped.

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

\_\_\_\_ 2. Which relation is a function?

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

\_\_\_\_ 3. Which relation is a function?

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

*Evaluate the expression.*

\_\_\_\_ 4. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 104 | c. | 218 |
| b. | 66 | d. | 504 |

\_\_\_\_ 5. Evaluate the following expression if *a* = 6, *b* = 7, and *c* = 10.

3c + *bc* – 2*a*

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 43 | c. | 88 |
| b. | 366 | d. | 498 |

\_\_\_\_ 6. Solve the equation.



|  |  |  |  |
| --- | --- | --- | --- |
| a. | 7 | c. | 10 |
| b. | 8 | d. | 1 |

*Evaluate the expression. Show each step.*

\_\_\_\_ 7. 

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

*Simplify the expression. If not possible, write simplified.*

\_\_\_\_ 8. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. | simplified | d. |  |

*Simplify the expression.*

\_\_\_\_ 9. 

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

*Solve the equation. Then check your solution.*

\_\_\_\_ 10. –  + *y* = 

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

*Solve the equation. Then check your solution.*

\_\_\_\_ 11. *x*  =  *x*

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

\_\_\_\_ 12. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | –5 | c. | 5 |
| b. | 0.6 | d. | 0.2 |

\_\_\_\_ 13. 4 – (3*a* + 4) = 7

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. | 3 |
| b. | –6 | d. | –3 |

*Solve the proportion. If necessary, round to the nearest hundredth.*

\_\_\_\_ 14. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 36 | c. | 32 |
| b. | 24 | d. | 28 |

*State whether the percent of change is a percent of increase or a percent of decrease. Then find the percent of change. Round to the nearest whole percent.*

\_\_\_\_ 15. original: 20

new: 50

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increase; 60% | c. | decrease; 150% |
| b. | increase; 150% | d. | decrease; 60% |

\_\_\_\_ 16. Bernardo originally had 48 customers on his paper route. Through a newspaper sales promotion, his customer base increased to 63. What was the percent of increase over the original number of customers?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | about 24% | c. | about 76% |
| b. | about 31% | d. | about 320% |

*Solve the equation or formula for the variable specified.*

\_\_\_\_ 17.  for *a*

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

\_\_\_\_ 18. If , find .

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 43 | c. | –3 |
| b. | 35 | d. | –5 |

*Find the solution set for the equation, given the replacement set.*

\_\_\_\_ 19. *y* = –9*x* – 5; {(0, –5), (1, –2), (–1, –7), (2, –4)}

|  |  |  |  |
| --- | --- | --- | --- |
| a. | {(2, –4)} | c. | {(1, –2)} |
| b. | {(–1, –7)} | d. | {(0, –5)} |

*Solve the equation for the given domain. Graph the solution set.*

\_\_\_\_ 20. 3*x + y* = –2 for *x* = {–1, 0, 1, 4}

|  |  |  |  |
| --- | --- | --- | --- |
| a. | {(–1, 1), (0, –2), (1, –5), (4, –14)} | c. | {(–1, 2), (0, –2), (1, –5), (4, –14)} |
| b. | {(–1, 1), (0, –2), (1, –5), (7, –12)} | d. | {(–1, 1), (0, –2), (1, –5), (4, –14)} |



*Source: U.S. Bureau of Census*

\_\_\_\_ 21. For which 10-year period was the rate of change of the population of Green Bay the greatest?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1990 - 2000 | c. | 1980 - 1990 |
| b. | 1970 - 1980 | d. | 1975 - 1985 |

\_\_\_\_ 22. For which 10-year period was the rate of change of the population of Green Bay the least?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1990 - 2000 | c. | 1980 - 1990 |
| b. | 1970 - 1980 | d. | 1975 - 1985 |

\_\_\_\_ 23. Find the rate of change from 1970 to 1980.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 17 thousand/yr | c. | 1.7 thousand/yr |
| b. | 2 thousand/yr | d. | 1.8 thousand/yr |

*Find the slope of the line that passes through the pair of points.*

\_\_\_\_ 24. (4, 1), (–1, –1)

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

*Write an equation of the line with the given slope and y-intercept*

\_\_\_\_ 25. slope: , *y*-intercept: –10

|  |  |  |  |
| --- | --- | --- | --- |
| a. | *y* = *x* – 10 | c. | *y* = *x* + 10 |
| b. | *y* = *x* – 10 | d. | *y* = *x* – 10 |

*Write an equation of the line that passes through each point with the given slope.*

\_\_\_\_ 26. 

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

\_\_\_\_ 27. 

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

*Write an equation of the line that passes through the pair of points.*

\_\_\_\_ 28. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | *y* = *x +*  | c. | *y* = *x –*  |
| b. | *y* = *x –*  | d. | *y* = *x +*  |

*Write the point-slope form of an equation for a line that passes through the point with the given slope.*

\_\_\_\_ 29. (6, –3), *m* = 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | *y* –3 = (*x* –6) | c. | *y* +3 = (*x* –6) |
| b. | *y* +3 = (*x* +6) | d. | *y* +3 = (*x* –6) |

*Write each equation in standard form.*

\_\_\_\_ 30. *y* – 8 = –3(*x* + 1)

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3*x* – *y =* 5 | c. | 3*x* + *y =* 5 |
| b. | *y* = –3*x* + 5 | d. | 3*x* + *y =* –11 |