**Algebra 1 Unit 2B Test ~ Study Guide Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Functions**

1. For the given function
f(x) = 2x + 7, find f (–2).

a. f(–2) = 11

b. f(–2) = 3

c. f(–2) = –3

d. f(–2) = 18

2. For the given function

f(x) = 4x–6, which x value would make f(x) = 30?

a. x = 6

b. x = 9

c. x = 7

d. x = 30

3. In the following table, find the domain when the range is 1.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | –3 | –2 | –1 | 0 | 1 | 2 | 3 |
| f(x) | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

a. 1

b. 0

c. –2

d. 4

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**Linear Characteristics**

4. Graph the function and determine the key characteristics.

 f(x) = 2x + 4

Domain:

Range:

x-intercept:

y-intercept:

Increasing or Decreasing?

Where?

End Behavior:



![[image]]()

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5. What is x when f(x) = 5?

6. What is the domain of the function?

7. What is the end-behavior, as x approaches positive infinity of the function modeled?

8. Write the function being modeled by the above graph.

**Rate of Change**

9. Find the rate of change of the following ordered pairs: (10, 1) and (15, –9)

10. Find the slope of the function: 3x – 6y = 12

11. The tables below model two linear functions.

 Function 1 Function 2

|  |  |
| --- | --- |
| x | f(x) |
| 1 | 3 |
| 2 | 1 |
| 3 | –1 |
| 4 | –3 |

|  |  |
| --- | --- |
| x | f(x) |
| 1 | 5 |
| 2 | 4 |
| 3 | 3 |
| 4 | 2 |

 Which of the linear functions below has a slope **greater than** the slope for Function 1 but **less than**

 the slope for Function 2?

a. f(x) = –1.5x–2 b. f(x) =–2x–4 c. f(x) = –2.5x + 3 d. f(x) = –3x + 6

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**Arithmetic Sequences**

|  |  |
| --- | --- |
| TermNumber | Value ofTerm |
| 1 | 2 |
| 2 | 7 |
| 3 | 12 |
| 4 | 17 |
| n | ? |

12. The table to the right shows the relationship between the number of a term in a pattern and the value of that term. Write a formula to represent the table.

13. The second term of an arithmetic sequence is a2 = 24. The common difference is d = –3. Find the first term of the sequence.

14. Pizza King sells pizza for $6 per pizza and a $4 delivery fee.

|  |  |
| --- | --- |
| n | an |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

a. Write a function to model this situation.

b. Complete the table.

c. How much money do you owe Pizza King for ordering 25 pizzas?

15. Find a15 for the sequence
an = 2n + 5.

16. Write a function that could be used to represent the sequence: 5, 11, 17, 23, …

17. Find a30 for the sequence
an = 2n – 12

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**Determine if the following are even, odd, or neither.**
16. f(x) = –5x4 + 3x – 1 17. f(x) = 2x5 + x 18. f(x) = 2x4 + 7x2 – 7



19. 20. 21.

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22. Jalen makes $14 per hour babysitting plus a flat rate of $5 for gas. Write the function. Name the slope and y-intercept.

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23. For the following table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 1 | 2 | 3 | 4 | 5 | 6 |
| y | 10 | 7 | 4 | –2 | –5 | –8 |

a) Is the relation a function?

b) What is the domain?

c) What is the range?

d) What is the rate of change?

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26. Determine if the following are functions:

 a) b)