Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 1 Test Review

**Percent Error and Standard Form**

Tulsa University timed random students on how long it takes them to run a mile. Below are the follow mile times they received.

 12.235 min, 7.431 min, 9.22 min, 21.567 min, 6.89 min, 8.025 min, 9.68 min

1. Find the average time it takes to run a mile. Round your answer to at least 3 decimal places

2. Write your answer from part a in the form $a×10^{k}$ where $1\leq a\leq 10$ and $k ϵ Z$

3. Ms. Campbell believes that the average time it takes to run a mile is 10.67 minutes. Calculate the percent error.

**Linear Lines:**

4. Hideaway is located at the point (5, 7) on the map. Find the gradient of the line from Hideaway to Mr. Horton’s house if Mr. Horton’s house is at the point (13, -9).

5. Write the equation of the line in gradient-intercept form.

6. Write the equation of the line in standard form.

7. What is the distance that Mr. Horton will have to travel to Hideaway?

8. Mr. Horton realized he doesn’t have enough gas to make it all the way to Hideaway. The gas station is halfway between his house and Hideaway. What coordinate on the map is the gas station located?

9. Find the equations of the lines that are parallel and perpendicular to the line in problem 5 and go through the point (1, 1).

Parallel Line: Perpendicular Line:

**Currency Conversions:**

Mrs. G is taking a vacation to Jamaica. The currency conversion is US$1 = JAM$127.80.

10. Mrs. G wants to convert US$750 for spending money. How many Jamaican dollars will she receive?

11. Mrs. G spends JAM$95,000. How many Jamaican dollars does she have left?

12. Before leaving Mrs. G decides to convert her money back into US$. Broker A uses the following conversion: US$1 = JAM$ 126.99 and takes a 2% commission. Broker B uses the following conversion: US$1 = JAM$ 128.22 but does not charge a commission. Which broker should Mrs. G go to?

**Area and Perimeter:**

13. The width of a rectangular garden is given by the expression x + 3 yd. The length of the garden is 4 yd. Find the perimeter of the garden in terms of x.

14. Find the area of the garden in terms of x.

15. Given that the area and the perimeter are the same, find the length and the width of the garden.

16. A cottage is being constructed in an isolated location in the forest and the builder must use a narrow trail to carry all goods to the construction site. The builder is trying to determine how many hours it will take to shift 1000 bricks and he has constructed a table to calculate the length of time needed.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hour | 0 | 1 | 2 | 3 | 4 | … |
| Number of bricks left to be moved | 1000 | 988 | 976 | 964 | 952 | … |

a. Determine the gradient of the linear model

b. What is the equation that represents the linear model?

c. How many hours will it take for the 1000 bricks to be moved, assuming the builder continues at the rate?

After working for 12 hours the builder stops for the day.

d. How many bricks had the builder shifted at the time?