Unit 4 Midterm Review

Name: KEY

**Each question will tell you a fact about your teacher.**

1.) The table below shows the average height of a tree and the amount of years that it has been growing.

| Time (years) | Height (in feet) |
|---|---|
| 10 | 7 |
| 11 | 8 |
| 12 | 10 |
| 13 | 12 |
| 14 | 15 |

What is the average rate of change in height of the tree fro. n Year 10 to Year 14?

* Mrs. Jessup started her education at **D.** Elementary School.

| | |
|---|---|
| **A. 1 foot per year** | London |
| **B. 1.25 feet per year** | Pine Hall |
| **C. 1.5 feet per year** | Riverside |
| **D. 2 feet per year** | Turner |

2.) Joey compared the y-intercept of the graph of the function $f(x) = 2x + 3$ to the y-intercept of the graph of the linear function that includes the points in the table below.

| x | g(x) |
|---|---|
| 3 | 20 |
| 6 | 35 |
| 9 | 50 |
| 12 | 65 |

What is the difference when the y-intercept of g(x) is subtracted from the y-intercept of f(x)?

* Mrs. Jessup grew up with _____.

| | |
|---|---|
| A. **-12** | one sister |
| B. **-2** | one sister and one brother |
| C. **2** | no siblings |
| D. **12** | one brother |

3.) The table below shows the amount cars having been through the gas station for the hours it is open.

| **Hours Open** | 3 | 6 | 9 | 12 | 15 |
|---|---|---|---|---|---|
| **Cars** | 60 | 120 | 180 | 240 | 300 |

What is the meaning of the slope of the linear model for the data?

* She celebrates her birthday on _____.

| | |
|---|---|
| **A. The gas station is open 20 hours for every car it serves.** | August 10 |
| **B. The gas station serves 1 car every 20 minutes.** | November 10 |
| **C. The gas station serves 60 cars per hour.** | January 10 |
| **D. The gas station serves 20 cars per hour.** | December 10 |

To turn "r" value ON, do 2nd [0] catalog, go to Diagnostics ON, Press Enter, until you see "Done" on the screen.

$y = ax + b$

On calculator, DO [STAT] Key, then Edit

After you enter into $L_1$ and $L_2$, DO [STAT] Key, arrow right [→] to Calc, then 4:LinReg.

$y = 2x - 13.6$ (a = 2, b = -13.6)

$3 - 5 = -2$

$g(x) = 5x + 5$

$m = \frac{120 - 60}{6 - 3} = \frac{60}{3} = \frac{20 \text{ cars}}{1 \text{ hr.}}$

can look at "b" value if you use STAT key

4.) The table below shows the cost of a sub sandwich based on the number of extras ordered.

| Number of Extras (n) | Cost (C) |
|---|---|
| 1 | $5.50 |
| 2 | $6.00 |
| 3 | $6.50 |
| 4 | $7.00 |

Which function represents the cost of a sub sandwich with *n* extras added on? $y = ax + b$ $a = .5$ $b = 5$

* To get to school, Mrs. Jessup sometimes drives a _____.

| | |
|---|---|
| **A. C(n) = 0.50n + 5** | Ford F-150 truck |
| **B. C(n) = 5n + 0.50** | Chevrolet 1500 truck |
| **C. C(n) = 0.50n + 5.50** | Toyota Tundra truck |
| D. **C(n) = 0.50n** | Dodge Ram truck |

use (0 start, 10 bushes) → (18, 280 bushes)

5.) There were originally 10 bushes in Mitchell's nursery. Each year the Mitchells planted the same number of bushes. In the 18th year, there were 280 bushes. Which function b(n), can be used to determine the number of bushes in the nursery in any particular year? $y = 15x + 10$

* March Madness....she is a _____ fan.

| | | | |
|---|---|---|---|
| **A. b(n) = 15n + 10** | Kentucky | **C. b(n) = 280/18n + 10** | North Carolina |
| **B. b(n) = 18n - 10** | Duke | D. **b(n) = 18n + 10** | Tennessee |

6.) The sequence below shows the total number of days Katrina went swimming by the end of weeks 1, 2, 3, and 4 of her new workout routine.

L1 L2 3, 5, 7, 9, ...

Which function could be used to find the total number of days Katrina swims at the end of week, *w*, if her pattern continues? $y = 2x + 1$

* In her spare time Mrs. Jessup likes to hunt and show _____ coonhounds.

| | | | |
|---|---|---|---|
| **A. S(w) = 5w - 2** | Treeing Walker | **C. S(w) = 2w + 1** | ~~Redbone~~ English |
| **B. S(w) = w + 2** | ~~English~~ | D. **S(w) = 5w + 2** | Bluetick |

7.) The table below shows the pants size and age of 5 boys.

Put equation in $y_1 =$ $y = .8x + .6$ and use Table

| Pants Size (Toddler Sizes - T) L1 | Age (years) L2 | Predicted Age (Look in Table) | Difference |
|---|---|---|---|
| 3 | 3 | 3 | 0 |
| 4 | 3 | 3.8 | 3 - 3.8 = .8 |
| 5 | 6 | 4.6 | 6 - 4.6 = 1.4 |
| 6 | 5 | 5.4 | 5 - 5.4 = -.4 |
| 7 | 6 | 6.2 | 6 - 6.2 = -.2 |

Approximately what percent of the boys' ages is more than 1 year different from the age predicted by the line of best fit?

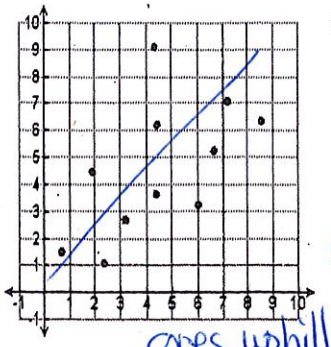
* Mrs. Jessup's favorite flavor of ice cream is _____.

| | |
|---|---|
| **A. 20%** | Butter Pecan |
| **B. 40%** | Cookies & Cream |
| **C. 60%** | Mint Chocolate Chip |
| D. **80%** | Chocolate |

only 1 is more than age predicted

$\frac{1}{5} = .2 \times 100 = 20\%$

8.) The scatterplot below shows the number of division errors students made on a test and the amount of time they took to take the test.



goes uphill

* Mrs. Jessup's favorite color is _____.

A. **There is a strong positive relationship between the variables.** Red

B. **There is a strong negative relationship between the variables.** Orange

C. **There is a weak positive relationship between the variables.** Pink

D. **There is a weak negative relationship between the variables.** Green

9.) What type of correlation is shown in the table?

| Sugar (grams) | Weight (pounds) |
|---|---|
| 40 | 125 |
| 75 | 140 |
| 85 | 135 |
| 110 | 160 |
| 90 | 175 |
| 55 | 157 |
| 96 | 172 |
| 50 | 160 |

(2nd 0 catalog ... down to Diagnostics ON)
(Be sure Diagnostics On, then "Done" on screen)

Look at "r" value

$y = ax + b$
$a = .358...$
$b = 126.09...$
$r^2 = .243...$
$r = .49$ ←

* Mrs. Jessup favorite kind of cookie is _____.

A. **Strong positive** chocolate chip

B. **Weak positive** peanut butter

C. **Strong negative** snickerdoodle

D. **Weak negative** an oreo

10.) The table below shows the number of hours that Tammy worked during 5 days and the amount of tips she earned.

| Hours Worked (x) | Tips Earned (y) | Predicted Tips |
|---|---|---|
| 6 | 71 | 63.68 |
| 7 | 90 | 77.27 |
| 8 | 82 | 92.86 |
| 4 | 26 | 30.5 |
| 6 | 55 | 61.68 |

$L_1$ $L_2$

$y = 15.59x - 31.86$

$90 - 77.27 = 12.73$

- Line of Best fit
- Put equation in $Y_1 =$
- use Table

What is the difference between the observed and predicted value of working 7 hours?

* **The answer to this question is how many states Mrs. Jessup will have travelled through or to in her lifetime.**

12.73