Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hour\_\_\_\_\_\_\_\_\_

**Semester 1 Final Exam Study Guide**

I can solve equations

|  |  |
| --- | --- |
| Solve for x.  -(x + 5) = 3x + 2(x - 4) | Solve for x.  -3x - 6x + x - 7 = -15x |
| Solve for x.  -2x – ( 8 – 4x) = -18 + 2x | Solve for x.  75 = 3 ( -6x – 5 ) |
| Describe the steps in both math and writing for solving the following problem: 3x – (2 + 5x)=12  **Written**  **Math**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

I can represent real world problems

|  |
| --- |
| The length of a rectangle is 7 cm more than twice its width. The perimeter of the rectangle is 32 cm. What are the dimensions of the rectangle? |
| The length of the rectangle is 6 in. more than its width. The perimeter of the rectangle is 44 in. What are the dimensions of the rectangle? |

I can evaluate a function

|  |  |
| --- | --- |
| If f(x) = -2x + 2 then find f(-2) | If g(x) = -x2 + 5x, then find g(-12) |
| If f(x) = -4x + 7 then find f (3) | If f(x) = -x+4, then find f(-3) |
|  | |

I can determine if an ordered pair is a solution

**Which of the following is a solution to the function f(x) = - x - 6**

a) (-2, -5)

b) (0, -6)

c) (5, 19)

d) (-3, -4)

**Which of the following is a solution to the function f(x) = 3x + 4**

a) (-2, -11)

b) (0, 6)

c) (6, -9)

d) (10, 34)

|  |
| --- |
| Which of the following is a solution to the function f(x) = -2x +1 ? Circle all that apply  a. (4,0) b. (3,7) c. (0,1) d. (8, -15) |

I can determine if a relation is a function or not and I can find domain and range.

|  |  |
| --- | --- |
|  | |
| Determine the domain and range.  **{ (-3, -6), (-1, -6), (5, -6), (8, -6) }**  Domain:  Range:  Is this relation a function? Explain your reasoning. | Determine the domain and range.  **{ (-2, 4), (-2, 0), (6, 5), (0, -2) }**  Domain:  Range:  Is this relation a function? Explain your reasoning. |
| Determine the domain and range.    Domain:  Range:  Is this relation a function? Explain your reasoning. | Determine the domain and range.    Domain:  Range:  Is this relation a function? Explain your reasoning. |
| Determine the domain and range.  C:\Users\lutsics\Desktop\file-57b47bd150eee.png  Domain:  Range:  Is this relation a function? Explain your reasoning. | Determine the domain and range.    Domain:  Range:  Is this relation a function? Explain your reasoning. |
| Determine the domain and range.   |  |  | | --- | --- | | **Number of Identical**  **Notebooks** | **Regular Cost of Notebooks (No Discounts)** | | 7 | 5.53 | | 2 | 1.58 | | 5 | 3.95 | | 3 | 2.37 |   Domain:  Range:  Is this relation a function? Explain your reasoning. | Determine the domain and range.  Domain:  Range:  Is this relation a function? Explain your reasoning. |
| **Answer the following questions**  1. What is the domain and range?  Domain:  Range:  2. How much soot is the factory producing at 12?  3. What is a reasonable domain?  **about the graph below** | |

I can find the slope

|  |
| --- |
| Which answers are solutions of the graph?  a) (2,0)  b) (0,4)  c) (2,8)  d) (-2,0)  e) (4,1)  Slope:  Y-intercept: |
| Which answers are solutions of the graph?  a) (0,-3)  b) (-4,1)  c) (2,8)  d) (3,1)  e) (-8,9)  Slope:  Y- intercept : |
|  |
| **1. Determine the rate of change and explain what it means.**   |  |  | | --- | --- | | **Time**  **(Hours)** | **Distance**  **(Miles)** | | **4** | **168** | | **6** | **252** | | **8** | **336** | | **10** | **420** |   **2. Write an equation in slope-intercept**  **Form**  3. What does the y-intercept represent? |
| **1. Determine the rate of change and explain**  **What it means**  **2. Write an equation in**  **Slope-intercept form.**  **3. What does the y-intercept represent?** |
| **1. Determine the rate of change.**  **2. Write an equation in**  **Slope-intercept form.**  **3. What does the y-intercept represent?** |
|  |
| Calculate the slope and explain what it means  a. 3 ; every time a marble is put in the jar, it adds 3 grams.  b. 1/3; every time 3 marbles are put in the jar, it adds 1 gram  c. 3/2; every time 3 marbles are put in the jar, it adds 2 grams.  d. 2/3; every time 2 marbles are put in the jar, it adds 3 grams. |

I can write equations in slope-intercept form and graph

|  |
| --- |
|  |
|  |

I can graph inequalities

|  |  |
| --- | --- |
| Graph the inequality  Y > 2x+4 | Graph the inequality    Y ≤ -3x -4 |
| Sketch a picture of each type of graph    **ONE SOLUTION NO SOLUTION INFINITE SOLUTIONS** | |

I can solve systems of equations

|  |  |
| --- | --- |
|  |  |
| 6x + 2y = -4  3x - 3y = 2 | y = 3x - 4  y = -2x + 6 |
| 2x + 3y = -2  6x + 9y = -6 | 3x + y = 1  3x + y = 6 |
| 3x - 4y = 10  2x + y = 3 | y = 3(x - 4)  y = 3x - 12 |
|  |  |

I can solve system word problems

|  |
| --- |
| The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 4 senior citizen tickets and 3 child tickets for a total of $83. The school took in $124 on the second day by selling 5 senior citizen tickets and 6 child tickets. Find the price of a senior citizen ticket and the price of a child ticket. |
| On Monday Joe bought 10 cups of coffee and 5 doughnuts for his office at the cost of $16.50. It turns out that the doughnuts were more popular than the coffee. On Tuesday he bought 5 cups of coffee and 10 doughnuts for a total of $14.25. Use the system below to answer the question.  10x + 5y = 16.50  5x + 10y = 14.25  How much does a doughnut cost? |
| A TV station executive is planning the new lineup for next season's shows. On Monday nights, there will be 4 sitcoms and 4 dramas, for a total of 320 minutes of programming, not counting commercials. On Tuesday nights, he has scheduled 6 sitcoms and 2 dramas, for a total of 268 minutes of non-commercial programming. All sitcoms have the same length and all dramas have the same length. How long is each type of show? |
| Several students decide to start a t-shirt company. After initial expenses for $280, they purchase each t-shirt wholesale for $3.99. They sell each shirt for $10.99. How many must they sell to break even? |

I can solve inequalities

|  |  |
| --- | --- |
| **Solve then graph**  5x + 2 < 2x - 4 | -4 > 2( -x - 8) |
| 9n - 8 ≤ 12n + 4 | 3 ≤ -3( -x - 9) |
|  |  |
|  | |

I can find the correlation coefficient and explain what it means

**Describe the correlation coefficient**

|  |
| --- |
| **r=.25** |
| **r=.90** |
| **r=-.8** |
| **r=-.4** |

I can use the line of best fit to determine future values

|  |
| --- |
| **Use the line of best fit to answer the following questions**  **1. Based on the line of best fit, predict the daily sales if the temperature was 64 degrees.**    **2. Based on the line of best fit, predict the temperature if the daily sales was $300.** |
| |  |  | | --- | --- | | **Speed (mi/h)** | **Stopping Distances (ft)** | | 10 | 26 | | 15 | 45 | | 20 | 64 | | 25 | 83 | | 30 | 110 | | 35 | 135 | | 40 | 163 | | 45 | 198 |   Use the table below to answer the following questions.  1. What is the slope\_\_\_\_\_\_\_\_\_\_  2. What is the y-intercept\_\_\_\_\_\_\_\_\_\_\_  3. What is the line of best fit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  4. What is the correlation coefficient and what does this mean about the data?    5. Using your best fit line for this data, predict what the stopping distance is after 60 miles per hour.  6. Using your best fit line for this data, predict the speed in miles per hour it would take for the stopping distances to be 230 feet. |

The correlation of SAT scores and grade point average (GPAs) for a random sample of high school students is represented by the line of best fit y= 40x-1800 .

a) Based on this trend, what will be the score of someone who has a 3.0 GPA?

b) Based on this trend, what will be the GPA of someone who earned a score of 1500?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Year** | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** | **1999** | | **Attendance (Millions)** | 250 | 261 | 278 | 261 | 275 | 293 | 298 | 298 | 310 | | **Revenue**  **(Billions of Dollars)** | 6.2 | 6.4 | 6.9 | 7.1 | 7.3 | 7.8 | 8.3 | 8.6 | 9.2 |   **Use the data above to answer the following questions.**  1. What is the slope\_\_\_\_\_\_\_\_\_\_  2. What is the y-intercept\_\_\_\_\_\_\_\_\_\_\_  3. What is the line of best fit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_  4. What is the correlation coefficient and what does this mean about the data?  5. Use your line of best fit to determine how many people must go to the parks before they make 13 billion dollars.      6. Use your line of best fit to determine how much money the parks made when there were 150 million people in attendance. |