**You must show work/explain EVERY question, even the multiple choice questions.**

1. What is the solution to the system of equations$\begin{matrix} 2x+3y=7\\x+y=3\end{matrix}$ ?

|  |  |  |  |
| --- | --- | --- | --- |
| 1) | $$(1,2)$$ | 3) | $$(4,-1)$$ |
| 2) | $$(2,1)$$ | 4) | $$(4,1)$$ |

1. \_\_\_\_\_\_\_\_\_

 2.) The graph below illustrates the number of acres used in Smalltown, New York, over several years. Using the line of best fit, how many acres will be used on the 5th year.

|  |  |  |  |
| --- | --- | --- | --- |
| 1) | 0 | 3) | 300 |
| 2) | 200 | 4) | 400 |

 2.) \_\_\_\_\_\_\_\_\_

 3.) The expression  is equivalent to

|  |  |  |  |
| --- | --- | --- | --- |
| 1) |  | 3) |  |
| 2) |  | 4) |  |

3.) \_\_\_\_\_\_\_\_\_

4.) What is the vertex to the equation $y=3x^{2}+6x+1$.

Explain how you found this answer!!

|  |  |  |  |
| --- | --- | --- | --- |
| 1) | $$(-1,-2)$$ | 3) | $$(1,-2)$$ |
| 2) | $$(-1,10)$$ | 4) | $$(1,10)$$ |

 4.) \_\_\_\_\_\_\_\_\_

 5.) The length and the width of a rectangle are 48 inches and 40 inches. To the nearest inch, what is the length of the diagonal?

|  |  |  |  |
| --- | --- | --- | --- |
| 1) | 27 | 3) | 88 |
| 2) | 62 | 4) | 90 |

5.) \_\_\_\_\_\_\_\_

 6.) Convert the equation $y=x^{2}-6x+11$ from standard form to vertex form. [2 points]

 b.) State the vertex **and** how you arrived to your answer. [2 points]

 7.) Use the data to below and a calculator to find the line of best fit for the raw test scores based on the number of hours tutored. Round all values to the nearest hundredth. [2 points]





 b.) Create a residual plot on the axes to the right, using the residual scores in the table above. [2 points]

 c.) Based on the residual plot, state whether the equation is a good fit for the data. Justify your answer. [2 points]