**Question 1** Standard: A1.REI.B.3 Blooms: Apply DOK: 2 Total Points: 6

Points Scored:

Points Possible: 68

---------- = %

Solve the System of Equation described below:

Negative three times one number plus five times another number is -11. Three times the first number plus seven times the second number is -1. Find the numbers.

|  |
| --- |
| Equation 1 (1 point):  Equation 2 (1 point):  Show ALL work here (2 points):  Answer (2 points): numbers = { , } |

**Question 2** Standard: A1.REI.B.5 Blooms: Apply DOK: 1 Total Points: 4

Solve the System of Equation described below:

4x – 4y = 8

-8x + y = 19

|  |
| --- |
| Show ALL work here (2 points):  Answer (2 points): (x, y) = ( , ) |

**Question 3** Standard: A1.REI.C.6 Blooms: Understand DOK: 2 Total Points: 2

Is the following diagram representative of a “function” or a “relation”? Justify your answer below:

2

-3

-2

5

-1

5

3

-2

|  |
| --- |
| Circle your answer (1 point): Function Relation  Justify your conclusion FULLY (1 point): |

Domain Range

**Question 4** Standard: A1.REI.C.7 Blooms: Apply DOK: 2 Total Points: 7

Use the GRAPHING method to solve the System of Inequalities described below:

y < 5x - 2

y ≥ -6x + 2

|  |
| --- |
| Show ALL work here (5 points):  Image result for blank axis grid"  Student Scoring Guide:  Line 1 location (1 point)  Line 1 type (1 point)  Shaded Region 1 (1 point)  Line 2 location (1 point)  Line 2 type (1 point)  Shaded Region 2 (1 point)  Solution Region (1 point) |

**Question 5** Standard: A1.NQ.A.2 Blooms: Understand DOK: 1 Total Points: 3

Perform the indicated operations on the radical expression to represent it in its simplest form below:

√3(√6 + √2)

|  |
| --- |
| Show ALL work here (2 points):  Answer (1 point): |

**Question 6** Standard: A1.REI.C.6 Blooms: Apply DOK: 1 Total Points: 7

Graph the equation given below:

3x + 2y = 12

|  |
| --- |
| Image result for blank axis grid"Show ALL work here (2 points):  Student Scoring Guide:  Point 1 location (1 point)  Point 1 Labeled (1 point)  Point 2 location (1 point)  Point 2 Labeled (1 point)  Line location (1 point) |

**Question 7** Standard: A1.LQE.A.3 Blooms: Apply DOK: 1 Total Points: 5

A music club began with an initial subscription list of 500,000 members. Since then, the subscription list has increased an average of 33,338 members per year. Write a function which describes the subscription *c* after *t* years and graph that function below:

|  |
| --- |
| Image result for blank axis grid"Write your function here (2 points):    Student Scoring Guide:  y intercept location (1 point)  Plotted Slope (1 point)  Line drawn (1 point)  Axis drawn (1 point)  Axis labels/scale (1 point) |

**Question 8** Standard: A1.LQE.B.4 Blooms: Analyze DOK: 2 Total Points: 5

Given the table below, write the equation for the nth term of arithmetic sequence and find the *f*(5) value below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **n** | 1 | 2 | 3 | 4 | 5 |
| ***f*(n)** | -12 | -8 | -4 | 0 | ? |

|  |
| --- |
| Show ALL work here (2 points):  Equation (2 points): *f*(n) =  *f*(5) value (1 point):  *f*(5) = |

**Question 9** Standard: A1.IF.A.1 Blooms: Apply DOK: 2 Total Points: 3

Determine whether the table below describes a function, and write the function/relation below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **n** | -2 | -1 | 0 | 2 | 3 | 4 |
| ***f*(n)** | 4 | 1 | 0 | 4 | 9 | 16 |

|  |
| --- |
| Circle your answer (1 point): Function Relation  Justify your conclusion FULLY (1 point):  Answer (1 point): *f*(n) = |

**Question 10** Standard: A1.IF.A.2 Blooms: Apply DOK: 2 Total Points: 4

If *f*(x) = 3x – 2 and *g*(x) = x2 – 4x, find the values for *f*(5) and *g*(5) in the space provided below:

|  |
| --- |
| Show ALL work here (2 points):  *f*(5) value (1 point):  *f*(5) =  *g*(5) value (1 point):  *g*(5) = |

**Question 11** Standard: A1.IF.C.7 Blooms: Analyze DOK: 2 Total Points: 6

Graph the function y = 2x2 + 2 and answer the questions about key features in the space given below:

|  |
| --- |
| Image result for blank axis grid"Show ALL work here (2 points):    Student Scoring Guide (1 point each):  Write the VERTEX coordinate: ( , )  Write the AXIS of SYMMETERY: x = \_\_\_\_\_\_  Write the y-INTYERCEPT: ( , )  Are there any Real Zeros? Circle one: Yes No |

**Question 12** Standard: A1.IF.A.2 Blooms: Apply DOK: 2 Total Points: 8

Given the two functions represented below, answer the question prompts in the space given below:

Function A: Function B:

|  |  |
| --- | --- |
| **x** | ***f*(x)** |
| -1 | 1 |
| 0 | 0 |
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |

{ (0 ,3 ), (2 ,1 ), (4 ,-1 ), ( 6,-3 ), ( -2,5 ) }

|  |  |  |
| --- | --- | --- |
| Analysis (1 point each): | Rationale (1 point each): | |
| 1. Are Functions A and B the SAME shape?   Circle one: Yes No | a) |  |
| 1. Function A is…   Circle one: Linear Quadratic | b) |  |
| 1. Function B is…   Circle one: Linear Quadratic | c) |  |
| 1. Which function has a “vertex”?   Circle one: A B | d) |  |

**Question 13** Standard: A1.BF.A.1 Blooms: Analyze DOK: 2 Total Points: 2

Explain the difference in the graphical shapes between *f*(x) = x2 – 4x, and *g*(x) = x2 – 4x + 3 below:

|  |
| --- |
| Answer and justify your conclusions FULLY here (2 points): |

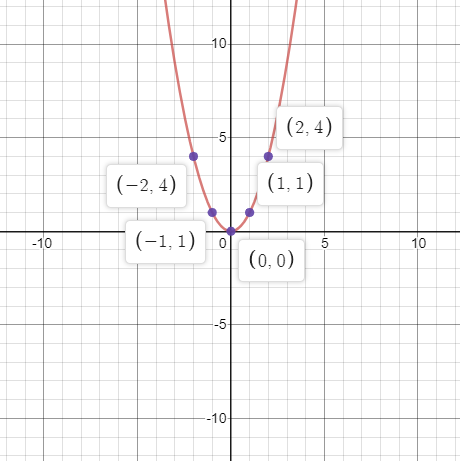
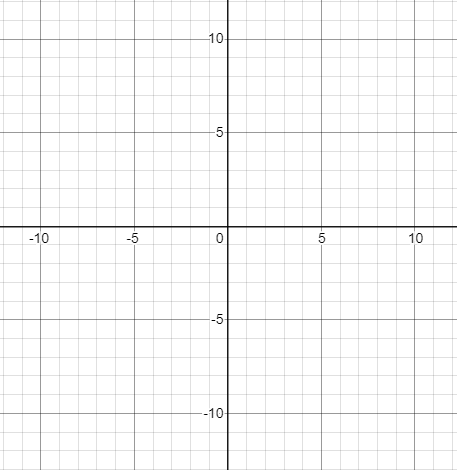
**Question 14** Standard: A1.BF.A.1 Blooms: Understand DOK: 1 Total Points: 1

When a function “slides” on the coordinate axis, but does NOT change shape or orientation, this is referred to as a:

1. Rotation c) Expansion
2. Contraction d) Translation

**Question 15** Standard: A1. BF.A.1 Blooms: Analyze DOK: 2 Total Points: 5

Given the function *f*(x) below… graph the transformation *g*(x) as instructed:

****

*f*(x) = x2  *g*(x) = x2 where: (*x + 2*, *y - 1*)