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Practice Final

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_Per\_\_\_\_\_\_\_\_\_\_\_

**F.IF.8 Write a function in different but equivalent forms.**

**F.IF.7a Graph quadratic functions expressed symbolically**

**F.IF.8a Use the process of factoring (and expanding) in a quadratic function to show zeros (intercepts), extreme values (vertex) and symmetry of the graph.**

**Show all your work.**

1. Combine like terms:

a. (2r – 9) (-3r – 7) b. -5p(6p2 + 5p + 8)

2. a. Make a table of the following equation: y = 2*x*2 – 4*x*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| y |  |  |  |  |  |  |  |

b. Sketch a graph of the table.

c. What are the roots (x-intercepts) for this equation?

d. What is the vertex for this equation?

3. Without graphing, fill in the following information for the given equation. Show all work.

*Don’t forget to use correct notation.*

2*v*2 – 9*v* + 1 = -3

Factored Form:

x-intercept(s):

y-intercept:

Line of symmetry:

Vertex:

|  |
| --- |
| **A.REI.4b Solve quadratic equations by quadratic formula and factoring.** |
| **F.IF.8a Show zeros, extreme values & symmetry to interpret these in context of quadratic functions.** |

4. Solve the following quadratic equations using the best method. Show all your work. Round to the hundredth place, when necessary.

1. 2*x*2 – 4= 9*x* b.

5. You and a friend are hiking in the mountains. You want to climb to a ledge that is 20 feet above you. The height of the grappling hook you throw is modeled by the equation, where is the height in feet and is the time in seconds.

* Draw a picture
* Use the equation to fine the solution(s) and answer the question(s)
  + *Don’t forget to: label, show all work and round answers to the hundredth place*

|  |
| --- |
| 1. If you miss the ledge when you throw the grapping hook, how long will it take for the hook to hit the ground below? |
| 1. What is the maximum height the grappling hood can reach? (Show all work) 2. Can the grappling hook reach the ledge? Explain how you know. |

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| **A.REI.2 Solve simple and radical equations in one variable** |
| **F.IF.1 Understand function, domain and range.** |
| **F.IF.2 Use function notation to evaluate functions.** |

6. Solve the following equation for the variable. Show all steps.

|  |  |  |
| --- | --- | --- |
| a. | b. | c. |

7. Find the domain and range of the following.

|  |  |  |
| --- | --- | --- |
| a.  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Function?: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | b.  Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Function?: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. {(0, 2), (3, 1), (0, 0), (1, -1)}   Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Function?: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

8. Use function notation to evaluate the following functions. Show all steps and correct notation!

***g*(*x*) = *x2* – 8 h(*x*) = 7*x* – 3**

1. *g*(h*(x)*) = b. *h(x)* = 32