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

Date \_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_

Review 402 – Quadratic Functions

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| 1. Are these data quadratic? Explain why or why not.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | x | 10 | 11 | 12 | 13 | 14 | | y | 50 | 71 | 94 | 119 | 146 | | 2. What is the range of the function  when the domain is {-3, 0, 3}? |
| 3. Give the domain & range for the functions    A: Domain: \_\_\_\_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_\_\_\_\_  B: Domain: \_\_\_\_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_\_\_\_\_ | 4. Give the axis of symmetry and the NUMBER of solutions for #3A.  Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_  Number of Solutions: \_\_\_\_\_\_\_\_\_\_  5. Give the axis of symmetry and the NUMBER of solutions for #4A.  Axis of Symmetry: \_\_\_\_\_\_\_\_\_\_\_  Number of Solutions: \_\_\_\_\_\_\_\_\_ |

6. Graph . Be sure to make a table and

plot at least 5 points!

7. Sketch a second graph on the coordinate plane to the

right that is narrower and has a vertex at (0, -4). What

would be a possible equation for that second graph.

8. The graph below represents the relationship between the height (in yards) and the horizontal distance (also in yards) of a soccer ball after being kicked. What is a reasonable domain and range for this situation?

Reasonable Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Reasonable Range: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- |
| 9. What is the effect on the graph of the equation  when the equation is changed to ? | 10. How will the graph of the function  change if the constant is changed to +1? | 11. What is the difference in the graphs of  and |
| 12. Write a function to describe the graph of  reflected over the x-axis. | 13. Write a function to describe the graph of  if widened. | 14. Write a function to describe the graph of  shifted up 4 units. |

Use this information for questions #15-18. The height in feet of a football that is kicked can be modeled by the function . (*t represents the variable time in seconds.)*

15. How long does it take the football to reach its maximum height?

16. What is the football’s maximum height?

17. How long does the football stay in the air?

18. What is a reasonable domain and range in this situation?

Use this information for questions #19-20. The path of a fireworks rocket in meters can be approximated by the function , where h is the height in meters and t is the time in seconds.

19. How high was the rocket 1 second after it was shot off?

20. What are the zeros of this function?

21. What do the zeros mean in this situation?

A company launches a test dummy off the top of a building. The graph of the “flight” of the dummy is shown. Answer questions #22-25 based on the graph.

22. What does the y-intercept mean in this problem?

23. How long does it take for the dummy to reach its maximum height, and what is its maximum height?

24. How long was the dummy in the air?

25. About how high was the dummy at 3 seconds?

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| --- | --- | --- |
| Use the graph to answer questions #26 & 27 | 26. Does this function have a maximum or minimum?  What is the maximum or minimum value? | 27. What are the roots of the function?  Would the “a” value of the equation of this function in standard form be positive or negative? |

28. Does the function  have a maximum or minimum?

What is the maximum or minimum value?

|  |  |
| --- | --- |
| 29. What are the solutions to ? | 30. What are the zeros of the function ? |