Quarter 1 Review

1. Determine the transformations that have occurred from to .
2. Determine the transformations that have occurred from to .
3. State the domain and range for .
4. State where the function, increases and decreases.
5. State where the function, increases and decreases.
6. State the domain and range for
7. Factor each of the following:
8. Solve each of the following. Simplify your answers and **do not** write them as decimals!
	1.
	2.
	3.
	4.
	5.
9. If the zeros of a quadratic function are –4 and 8, what could be the quadratic equation?
10. If the zeros of a quadratic function are 0, 2, and –1, then what could be the quadratic equation?
11. State the discriminant and then describe the number and type of roots for each of the following:
12. State the axis of symmetry for .
13. Find the vertex for .
14. Find the axis of symmetry and vertex for .
15. The function y = –0.016*t*2 + 0.58*t* models the height in feet of a squirrel’s jump in seconds after it jumps. How high did the squirrel jump?
16. Graph . Then determine the domain, range, and intervals of increase/decrease.
17. Graph . Then determine the domain, range, and intervals of increase/decrease.
18. Graph each of the following
19.
20. A biologist took a count of the number of migrating birds at a particular lake. He recounted the lake’s population of birds on each of the next six weeks.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Week** | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| **Population** | 585 | 582 | 629 | 726 | 873 | 1,070 | 1,317 |

Find a quadratic function that models the data as a function of *x*, the number of weeks. Use the model to estimate the number of waterfowl at the lake for 10 weeks.

1. Find the quadratic equations which fit each of the following graphs.



1. Simplify each of the following (remember not to leave any negative exponents!!)
2. Solve each of the following equations:
3. Solve the following systems of equations:
4. Jason jumped off of a cliff into the ocean in Acapulco while vacationing with some friends. His height as a function of time could be modeled by the function, where t is the time in seconds and h is the height in feet.
5. How long did it take for Jason to reach his maximum height?
6. What was the highest point that Jason reached?
7. Jason hit the water after how many seconds?