PRACTICE/HOMEWORK

For questions 1-6 determine whether the set of data represents a linear, quadratic, or exponential function.

1.

x	$y = f(x)$
1	7
2	16
3	27
4	40
5	55

2.

x	$y = f(x)$
1	-4
2	-1
3	2
4	5
5	8

3.

x	$y = f(x)$
1	-13
2	-28
3	-45
4	-64
5	-85

4.

x	$y = f(x)$
1	2
2	4
3	8
4	16
5	32

5.

x	$y = f(x)$
1	-4
2	-6
3	-6
4	-4
5	0

6.

x	$y = f(x)$
1	0.2
2	0.04
3	0.008
4	0.0016
5	0.00032

For questions 7-12 use the data set to generate a quadratic function that best models the data.

7.

x	$y = f(x)$
1	3
2	12
3	27
4	48
5	75

8.

x	$y = f(x)$
1	2
2	2
3	0
4	-4
5	-10

9.

x	$y = f(x)$
1	-12
2	-20
3	-24
4	-24
5	-20

10.

x	$y = f(x)$
1	8.5
2	18
3	28.5
4	40
5	52.5

11.

x	$y = f(x)$
1	1
2	-8
3	-23
4	-44
5	-71

12.

x	$y = f(x)$
1	6
2	28
3	58
4	96
5	142

For questions 13 and 14, use the following information.

SCIENCE

The Texas Department of Public Safety can use the length of skid marks to help determine the speed of a vehicle before the brakes were applied. The quadratic function that best models the data is $f(x) = \frac{x^2}{24}$ where x represents the speed of the vehicle and $f(x)$ is the length of the skid mark. The speeds of a vehicle and the length of the corresponding skid marks are shown in the table below.

SPEED OF A VEHICLE IN MILES PER HOURS, x	DISTANCE OF THE SKID IN FEET, $f(x)$
30	37.5
36	54
42	73.5
48	96
54	121.5
60	150

13. Use the table of data to determine the length of a skid mark of a vehicle that was traveling at a speed of 72 miles when it applied the brakes.

14. Use the table of data to determine how fast a vehicle was traveling if the length of the skid mark was 24 feet.

For questions 15 - 17, use the following information.

SCIENCE

A ball is thrown upward with an initial velocity of 35 meters per second. The position of the ball over time is recorded in the table below.

15. Use the data in the table to generate a quadratic function that models the data.

16. Use the data in the table to find the height of the ball after 7 seconds.

17. Use the data in the table to determine after how many seconds the ball will be 30 meters high.

TIME IN SECONDS, x	DISTANCE FROM THE GROUND IN METERS, $f(x)$
0	0
1	30
2	50
3	60
4	60
5	50

For questions 18 - 20, use the following information.

GEOMETRY

Judy wants to construct a rectangular pen for her puppy, but only has 56 feet of fencing to use for the pen. The table below shows the width, length, and area of different size pens.

WIDTH (FT)	LENGTH (FT)	AREA (SQ. FT.)
10	18	180
11	17	187
12	16	192
13	15	195
14	14	196
15	13	195
16	12	192

18. Use the data in the table to generate a quadratic function that models the data.

19. Use the data in the table to determine the dimensions that would create a pen with an area of 160 ft^2.

20. Use the data in the table to determine the area of a pen where one of the dimensions measures 20 feet.