9-4 Homework

WS Data Relationships & Exponential Review Name _____

Determine the type of relationship each data demonstrates: linear, exponential, or neither. For linear and exponential find the equation for the data.

1.

x	y
0	3
1	5
2	7
3	9
4	11

_____

_____

2.

x	y
-1	3
-2	9
-3	27
-4	81
-5	243

_____

_____

3.

x	y
0	1
1	5
2	25
3	125
4	625

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_____

4.

x	y
2	11
3	16
4	21
5	26
6	31

_____

_____

5.

x	y
3	16
4	22
5	28
6	34
7	40

_____

_____

6.

x	y
1	10
2	20
3	40
4	80
5	160

_____

_____

7.

x	y
5	17
6	20
7	23
8	26
9	29

_____

_____

8.

x	y
2	6
3	9
4	12
6	14
7	17

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_____

9. Adriane deposits $1500 in an account that pays 5% interest yearly. How much money does she have after 6 years?

10. In 2000 Florida's population was 16 million. Since 2000, the state's population has grown about 2% each year. This means that Florida's population is growing exponentially. Find Florida's population in 2006?

11. Since 1995, the daily cost of patient care in community hospitals in the United States has increased about 4% per year. In 1995, such hospital costs were an average of $968 per day.
    A) Write an equation to model the cost of hospital care since 1995.

    B) Use your equation to estimate the approximate cost per day in 2010.

12. Daniel's Print Shop purchased a new printer for $35,000. Each year it depreciates at a rate of 5%. What will its new approximate value be at the end of the 4^{th} year? (Round to the nearest cent.)

13. Suppose your parents deposited $1,500 in an account paying 3.5% interest compounded annually when you were born. Find the account balance after 18 years. (Round to the nearest cent.)

14. You buy a new car for $22,000. The value of the car decreases by 12.5% each year.
    A) Write an exponential decay equation for the value of the car.

    B) Estimate the value of the car after 3 years.

    C) Estimate when the car will have a value of $8000.

15. One hundred grams of plutonium is stored in a container. The amount P (in grams) of plutonium present after t years can be modeled by the equation, $P = 100(0.99997)^t$. How much plutonium is present after 20,000 years?