**Writing Exponential Equations**

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

Explicit Formula:

Recursive Formula:

Examples:

Write a recursive and an explicit rule for the following exponential functions.

1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 0 | 1 | 2 | 3 | 4 | 5 |
| y | 5 | 10 | 20 | 40 | 80 | 160 |

1. Justin starts spreading a rumor. He tells three people the rumor and each of those three people tells three more people. This pattern continues so that every person that hears the rumor tells exactly three people.
2. Jill invested $150 into a bank account that earns an annual interest rate of 1.5%.

Write a NOW NEXT rule from each “y =” rule

1. $y=3\*4^{x}$
2. $y=7^{x}$

Write a “y=” rule from each NOW NEXT rule

1. $Next=Now\*2, starting at 4$
2. $Next=Now\*1.02, starting at 100$

**Independent Practice**

Write a recursive and explicit rule for the following exponential functions.

1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | 0 | 1 | 2 | 3 | 4 | 5 |
| y | 16 | 8 | 4 | 2 | 1 | 0.5 |

1. A softball team set up a phone tree so that the coach can communicate information quickly to the team. The coach starts off the phone tree and calls two players on the team. Then those two players each call two players. Those four players who just received a phone call then each call two players.
2. Thomas just bought a new car for $15,000. The value of the car is estimated to depreciate 15% each year.

Write a NOW NEXT rule from each “y=” rule

1. $y=1.5^{x}$
2. $y=8\*0.5^{x}$

Write a “y=” rule from each NOW NEXT rule

1. $Next=Now\*4, starting at 11$
2. $Next=Now+Now\*0.03, starting at 100$