For the tables below, identify which of the following relationships:

1. Change by equal differences over equal intervals (linear)

OR

1. Change by equal factors (ratios) over equal intervals (exponential)

OR

1. Neither

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | |  |  | | -30 | -57 | | -25 | -47 | | -20 | -37 | | -15 | -27 | | -10 | -17 | | -5 | -7 | | |  |  | | --- | --- | | *x* |  | | 3 | -5 | | 4 | -10 | | 2 | -20 | | 6 | 15 | | 7 | 35 | | 5 | 50 | |
| |  |  | | --- | --- | |  |  | | 3 | -5 | | 5 | -10 | | 7 | -20 | | 9 | -40 | | 11 | -80 | | |  |  | | --- | --- | |  |  | | 0 | -6 | | 1 | -12 | | 2 | -24 | | 4 | -48 | | 6 | -96 | |
| |  |  | | --- | --- | |  |  | | 0 | 3 | | 1 | 6 | | 3 | 24 | | 7 | 384 | | 9 | 1536 | | |  |  | | --- | --- | |  |  | | -1 | 4 | | 1 | 8 | | 4 | 2 | | 5 | 6 | | 9 | 30 | |
| |  |  | | --- | --- | |  |  | | 0 | -5 | | 4 | -2 | | -4 | -8 | | 8 | 1 | | -8 | -11 | | |  |  | | --- | --- | |  |  | | -10 | 7 | | -5 | 8 | | -0 | 9 | | 5 | 4 | | 10 | 3 | |
| 9.   |  |  | | --- | --- | |  |  | | 0 | -5 | | 4 | -2 | | 8 | 1 | | 10 | 4 | | 12 | 7 | | |  |  | | --- | --- | |  |  | | -5 | 6 | | -4 | 3 | | -3 | 1 | | -2 | 17 | | -1 | 119 | |

## 

## Ready

Topic: Recognizing the greater rate of change when comparing 2 linear functions or 2 exponential functions.

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**Decide which function is growing faster**

1. 2. 3.

4. 5. 6.

****

7a. Examine the graph at the left from 0 to 1.

Which graph do you think is growing faster?

b. Now look at the graph from 2 to 3.

Which graph is growing faster in this interval?

## Set

Topic: Representations of linear and exponential functions.

**In each of the following problems, you are given one of the representations of a function. Complete the remaining 3 representations. Identify the rate of change for the relation.**

|  |  |
| --- | --- |
| 8. **Equation**: **Graph** | |
| **Table**   |  |  | | --- | --- | | Rides | Cost | |  |  | |  |
| **Create a context**  You and your friends go to the state fair. It costs $5 to get into the fair and $3 each time you go on a ride. |

|  |  |
| --- | --- |
| 9. **Equation**: **Graph** | |
| **Table**   |  |  | | --- | --- | | Time | Amount | | 1  2  3  4  5  6 | 18  54  162  486  1458  4374 | |  |
| **Create a context** |

## Go

Topic: Recursive and explicit equations of geometric sequences.

**Write the recursive and explicit equations for each geometric sequence.**

10. Marissa has saved $1000 in a jar. She plans to withdraw half of what’s remaining in the jar at the end of each month.

|  |  |
| --- | --- |
| Folds in paper | Number of rectangles |
| 0  1  2  3 | 1  2  4  8 |

11. 12.

|  |  |
| --- | --- |
| Time  (Days) | Number of Bacteria |
| 1  2  3  4 | 10  100  1000  10000 |

13. 1024, 256, 64, 16, . . . 14. 3, 9, 27, 81, . . .

Need Help? Check out these related videos:

<http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/identifying-exponential-models>

<http://www.khanacademy.org/math/algebra/ck12-algebra-1/v/linear--quadratic--and-exponential-models>