

Review - Rate of Change, Exponential Functions, Sequences and Transformations.

① What is the rate of change for $f(x) = -5x + 3$ over the interval $[2, 8]$?

② Given: $f(x) = (x-1)^2 + 3$
Find Rate of Change over the interval $[2, 5]$.

③ Given: $f(x) = -5.2x + 1$ over $[10, 20]$.

④ If $g(x)$ is a Vertical translation 6 units up of $f(x) = 7x + 1$, what is the rule for $g(x)$?

⑤ If $g(x)$ is a Vertical translation 10 units down of $f(x) = 6x + 1$, what is the rule for $g(x)$?

⑥ Describe the transformation:
 $y = -\frac{1}{3}x + 2$

⑦ Given:
 $g(x): f(x) = \frac{1}{2}x + 3$

x	y
-1	-1
0	2
1	5

⑧ Given:
12, 22, 32, 42, ...
Write the Recursive Form
≠ Explicit Form.

⑨ Given:
 $A_n = 17 + 2(n-1)$
Find:
 $A_1 =$
 $A_{20} =$

- Which has greater Rate of Change?
- Which has greater y-intercept?

⑩ Given the Sequence
7, 13, 19, 24, ...
Assuming the pattern continues, Write a function for the n^{th} term.

⑪ If $A_n = A_{n-1} + 5$
and $A_7 = 15$, what is A_{10} ?

⑫

hours	10	15	17	23
Salary	160	235	265	355

What is the average rate of change from hours 15 to 23?

⑬ The explicit formula for a geometric sequence is $a_n = 4(-3)^{n-1}$. What is the 5th term of the sequence?

⑭ Given $f(x) = 3^x$

Find:

Domain:

Range:

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

Increasing or Decreasing

⑮

x	3	2	1	0	-1
y	2	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$

Which is the equation:

(A) $f(x) = \left(\frac{1}{4}\right)^x$

(B) $f(x) = 3^x$

(C) $f(x) = \frac{1}{4} \cdot 2^x$

⑯ Graph:
 $y = 3\left(\frac{1}{2}\right)^x$

⑰ Graph
 $y = 2(3)^x$

⑱ The explicit formula for a geometric sequence is $a_n = 15(2)^{n-1}$. What is the 8th term?

⑲ Describe the transformation:
 $y = 3x + 5$

⑳ If $a_n = a_{n-1} - 2$ and $a_3 = -7$, find a_5 .

㉑ $y = \left(\frac{1}{4}\right)^x$

Find:

Domain:

Range:

$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

Increasing or Decreasing