

9.4H Linear OR Exponential

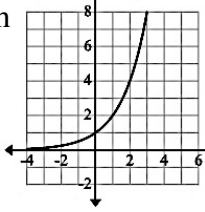
Name: _____ Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

Complete the following tables. Graph type: Linear, Exponential, Parabola or other

<p>1.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>2</td><td>10</td></tr> <tr><td>3</td><td>20</td></tr> <tr><td>4</td><td>40</td></tr> <tr><td>5</td><td></td></tr> <tr><td>10</td><td></td></tr> </table>	x	f(x)	2	10	3	20	4	40	5		10		<p>2.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>y</th></tr> <tr><td>-2</td><td>23</td></tr> <tr><td>-5</td><td>50</td></tr> <tr><td>2</td><td>-13</td></tr> <tr><td>4</td><td>-31</td></tr> </table>	x	y	-2	23	-5	50	2	-13	4	-31	<p>3.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>0</td><td>8</td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td>200</td></tr> <tr><td>3</td><td>1000</td></tr> <tr><td>4</td><td></td></tr> </table>	x	f(x)	0	8	1		2	200	3	1000	4		<p>4.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>1</td><td>16</td></tr> <tr><td>2</td><td>32</td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>7</td><td>1024</td></tr> </table>	x	f(x)	1	16	2	32	3		4		7	1024
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<p>5.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>1</td><td>32</td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td>256</td></tr> <tr><td>5</td><td></td></tr> </table>	x	f(x)	1	32	2		3		4	256	5		<p>6.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>0</td><td>15,625</td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>5</td><td>5</td></tr> </table>	x	f(x)	0	15,625	1		2		3		5	5	<p>7.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>2</td><td>23</td></tr> <tr><td>4</td><td>41</td></tr> <tr><td>5</td><td></td></tr> <tr><td>10</td><td></td></tr> </table>	x	f(x)	2	23	4	41	5		10		<p>8.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><th>x</th><th>f(x)</th></tr> <tr><td>2</td><td>500</td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td>62.5</td></tr> <tr><td>10</td><td></td></tr> </table>	x	f(x)	2	500	3		4		5	62.5	10	
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Answer the following based on the given information.

<p>9. Each term is exactly -8 times the previous term. Graph type: _____ Explain: _____ _____ d or r _____</p>	<p>10. Each term is exactly $\frac{1}{3}$ of the previous term. Graph type: _____ Explain: _____ _____ d or r _____</p>	<p>11. $f(x)=2x^2 + 6x + 10$ Graph type: _____ Explain: _____ _____ d or r _____</p>	<p>12. Graph type:  _____ d or r _____</p>
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13. Fill in the table for both the Arithmetic and Geometric sequences

	1	2	3	4	5
Arithmetic	5				405
Geometric	5				405

14. Write equations for each sequence in the table above.

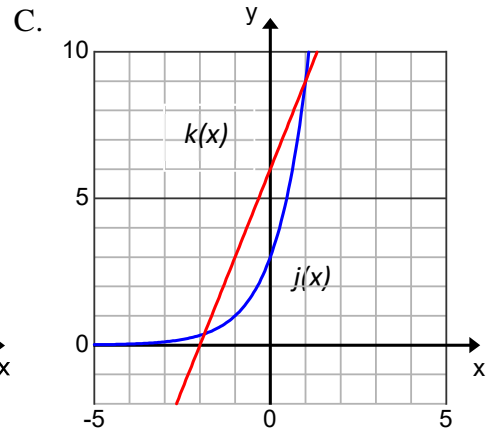
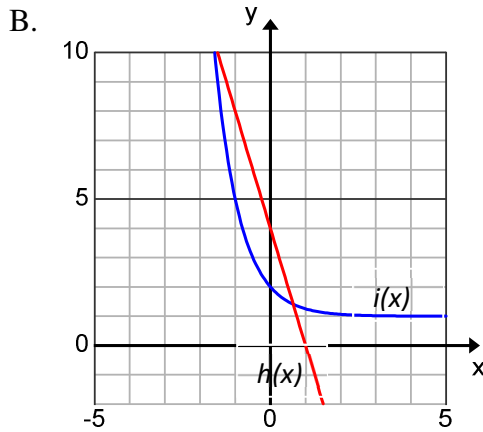
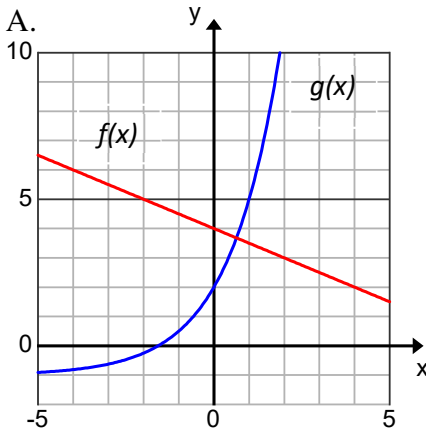
Arithmetic:

Geometric:

- a. Recursive: _____
- b. Slope-intercept: _____
- c. Explicit: _____

- d. Recursive: _____
- e. Explicit using $f(0)$: _____
- f. Explicit using $f(1)$: _____

Using the graphs, answer the following questions.



15. In graph A,
- calculate the average rate of change for $g(x)$ over the interval $[-5, 0]$. _____
 - calculate the average rate of change for $g(x)$ over the interval $[0, 1]$. _____
 - Using the average rate of change above, which function is changing faster over the interval $[0,1]$? _____
16. In graph B,
- calculate the average rate of change for $i(x)$ over the interval $[-1, 0]$. _____
 - calculate the average rate of change for $i(x)$ over the interval $[0, 5]$. _____
 - Using the average rate of change above, which function is changing faster over the interval $[0, 5]$? _____
17. In graph C,
- calculate the average rate of change for $j(x)$ over the interval $[-1, 0]$. _____
 - calculate the average rate of change for $j(x)$ over the interval $[0, 1]$. _____
 - Using the average rate of change above, which function is changing faster over the interval $[-1, 0]$? _____

18. Ellie is planning to pay \$4000 for a computer. She is trying to figure out which loan options is a better deal if she can make no payments on the computer for 5 years. She has two options:

Make a 4-column table for both options.

A. A simple interest loan where she pays the same 15% interest per year.

B. A compound interest loan where she pays 10% per year, but every year she has to pay interest on the total amount from the year before.

- How much interest will Ellie pay for plan A on the 5th year? _____
- How much interest will Ellie pay for plan B on the 5th year? _____
- How much interest will Ellie pay in year 10 for plan A if she can't make payment until then? _____
- How much interest will Ellie pay in year 10 for plan B if she can't make payment until then? _____
- Which is the better deal? _____ Explain: