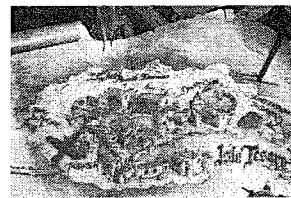


Name:

Linear and Exponential Functions | 4.10

Ready, Set, Go!



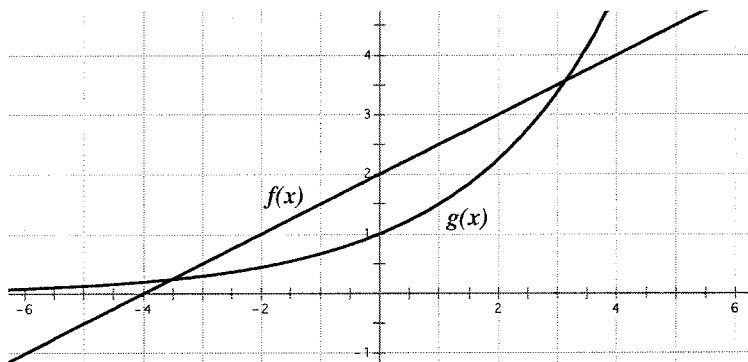
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Ready

1. Give an example of a discrete function.
2. Give an example of a continuous function.
3. The first and 5th terms of a sequence are given. Fill in the missing numbers for an arithmetic sequence. Then fill in the numbers for a geometric sequence.

Arithmetic	-6250					-10
Geometric	-6250					-10

4. Compare the rate of change in the pair of functions in the graph by identifying the interval where it appears that $f(x)$ is changing faster and the interval where it appears that $g(x)$ is changing faster. Verify your conclusions by making a table of values for each function and exploring the rates of change in your tables.



5. Identify the following sequences as linear, exponential, or neither.
 - a. -23, -6.11, 28, ...
 - b. 49, 36, 25, 16, ...
 - c. 5125, 1025, 205, 41, ...
 - d. 2, 6, 24, 120, ...
 - e. 0.12, 0.36, 1.08, 3.24, ...
 - f. 21, 24.5, 28, 31.5, ...

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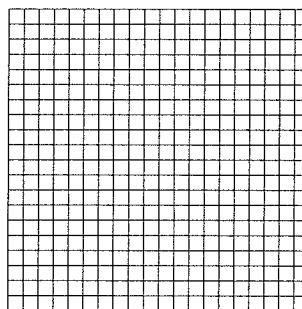
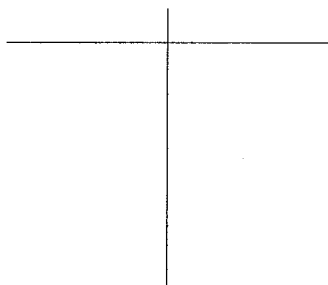
Name: _____ Linear and Exponential Functions | 4.10

There were 2 girls in my grandmother's family, my mother and my aunt. They each had 3 daughters. My two sisters, 3 cousins, and I each had 3 daughters. Each one of our 3 daughters have had 3 daughters...

13. If the pattern of each girl having 3 daughters continues for 2 more generations (my mom and aunt being the 1st generation, I want to know about the 5th generation), how many daughters will be born then?

14. Write the explicit equation for this pattern.

15. Create a table and a graph describing this pattern. Is this situation discrete or continuous?



Go

Solve the following equations.

16. $5x + 3 = 2(x - 6)$ 17. $6x - 12x + 10 = 2(-3x - 6)$ 18. $13x - 12x + \frac{1}{2} = x + \frac{3}{6}$

Write the equation of the line in slope-intercept form given the following information.
(P and Q are points on the line)

19. $f(0) = 6, f(n) = f(n-1) + \frac{1}{4}$ 20. $m = -3, P: (-5, 8)$ 21. $14x - 2y + 9 = 0$

22. $P: (17, -4), Q: (-5, -26)$ 23. $y - 9 = \frac{1}{2}(x + 6)$ 24. $P: (11, 8), Q: (-1, 8)$

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Name: _____ Linear and Exponential Functions | 4.10

Recall the following formulas: Simple interest $i = prt$ Compound interest $A = P(1+r)^t$

Using the formulas for simple interest or compound interest, calculate the following.

25. The simple interest on a loan of \$12,000 at an interest rate of 17% for 6 years.
26. The simple interest on a loan of \$20,000 at an interest rate of 11% for 5 years.
27. The amount owed on a loan of \$20,000, at 11%, compounded annually for 5 years.
28. Compare the interest paid in #26 to the interest paid in #27. Which kind of interest do you want if you have to take out a loan?
29. The amount in your savings account at the end of 30 years, if you began with \$2500 and earned an interest rate of 7% compounded annually.

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