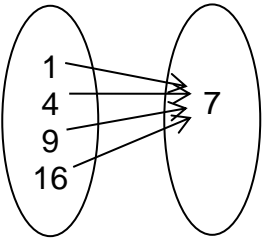
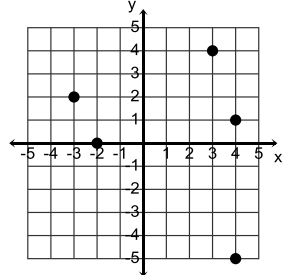
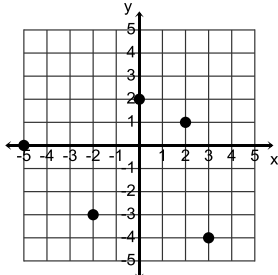
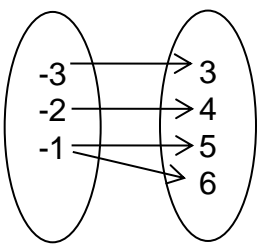


Determine if the following relations are functions. If it is a function, state the domain and range.

<p>1.</p>  <p>function: yes or no</p> <p>D:</p> <p>R:</p>	<p>2.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">gallons of gas</th> <th style="padding: 5px;">cost</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> </tr> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">3.5</td> </tr> <tr> <td style="text-align: center; padding: 5px;">2</td> <td style="text-align: center; padding: 5px;">7</td> </tr> <tr> <td style="text-align: center; padding: 5px;">3</td> <td style="text-align: center; padding: 5px;">10.5</td> </tr> </tbody> </table> <p>function: yes or no</p> <p>D:</p> <p>R:</p>	gallons of gas	cost	0	0	1	3.5	2	7	3	10.5	<p>3.</p>  <p>function: yes or no</p> <p>D:</p> <p>R:</p>
gallons of gas	cost											
0	0											
1	3.5											
2	7											
3	10.5											
<p>4.</p>  <p>function: yes or no</p> <p>D:</p> <p>R:</p>	<p>5.</p>  <p>function: yes or no</p> <p>D:</p> <p>R:</p>	<p>6. <math>\{(-1, 1), (0, 0), (1, 1), (2, 4)\}</math></p> <p>function: yes or no</p> <p>D:</p> <p>R:</p>										

Identify the independent and dependent variable for each relation.

7. Increasing the temperature of a compound inside a sealed container increases the pressure inside a sealed container.

Independent: \_\_\_\_\_

Dependent: \_\_\_\_\_

Discrete or Continuous

8. Mike’s cell phone is part of a family plan. If he uses more minutes than his share, then there are fewer minutes available for the rest of his family.

Independent: \_\_\_\_\_

Dependent: \_\_\_\_\_

Discrete or Continuous

9. Julian is buying concert tickets for himself and his friends. The more concert tickets he buys the greater the cost.

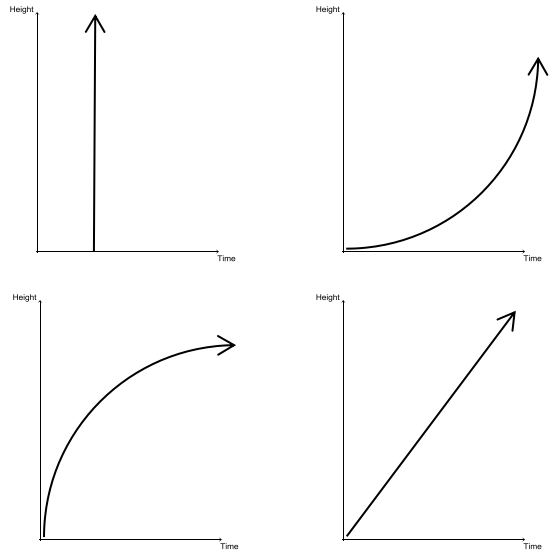
Independent: \_\_\_\_\_

Dependent: \_\_\_\_\_

Discrete or Continuous

10. Match the graph with the scenario about raising the school flag.

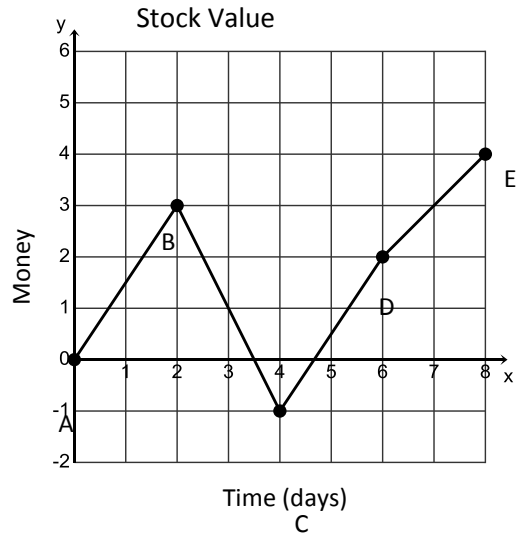
- a) Mr. Wallace uses a motor to raise the school flag at a constant rate.
- b) The school flag is at the bottom and the top at the same time.
- c) Mr. Murry uses a motor that raises the school flag fast in the beginning and slows near the top.
- d) Mr. Sumner uses a motor that raises the school flag slow in the beginning and faster near the top.



11. For each portion of the graph:

- 1) state the interval,
- 2) find the slope, and
- 3) explain what is going on?

- A to B 1)                      2)
- 3)
- B to C 1)                      2)
- 3)
- C to D 1)                      2)
- 3)
- D to E 1)                      2)
- 3)

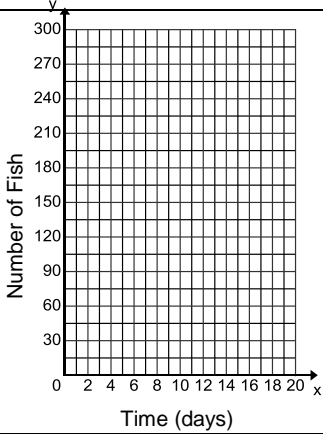


Decide if the situation represents a linear increasing function, a linear decreasing function, an exponential growth function, or an exponential decay function. Then write the equation that represents the situation.

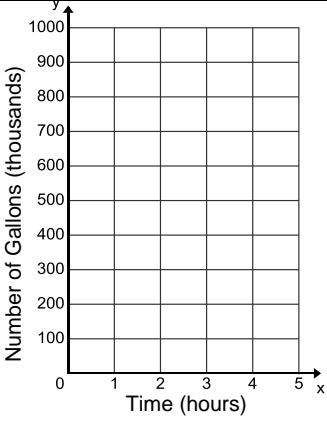
- 12. A geologist discovers a radioactive material that starts with 1,200 particles and has a half-life of one day.
- 13. A marathon runner starts by running 3 miles and then adds an additional 4 miles per week to his workout schedule.
- 14. The value of a car starts at \$15,000 and drops \$1000 per year it is owned.
- 15. Madden started a rumor and the number of students who heard the rumor doubled every hour.

**Directions:** In each of the following problems, you are given one of the representations of a linear function. Complete the remaining 3 representations and answer the questions.

16.

<p><u>Context</u></p> <p>There are 500 fish in a pond. A crocodile is loose in the pond and is eating the fish. Each day the crocodile eats 25 fish.</p>	<p><u>Table</u></p> <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="width: 50%; height: 20px;"></td><td style="width: 50%; height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> </table>																	<p><u>Questions</u></p> <p>a) discrete or continuous</p> <p>b) domain</p> <p>c) range</p> <p>d) What is the value at <math>f(12)</math>?</p>
<p><u>Graph</u></p> 	<p><u>Rate of Change:</u></p> <p><u>Start Point (y-intercept):</u></p> <p><u>Equation:</u></p>	<p>e) What is the value at <math>f(20)</math>?</p> <p>f) What <math>x</math>-value makes <math>f(x) = 225</math> true?</p>																

17.

<p><u>Context</u></p> <p>The water storage tank for irrigation holds 500 thousand gallons, each hour, the number of gallons of water in the tank decreases by 10% during the average day.</p>	<p><u>Table</u></p> <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Time (hours)</th> <th style="width: 50%;">Water (thousand gallons)</th> </tr> </thead> <tbody> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> <tr><td style="height: 20px;"></td><td style="height: 20px;"></td></tr> </tbody> </table>	Time (hours)	Water (thousand gallons)																	<p><u>Questions</u></p> <p>a) discrete or continuous</p> <p>b) domain</p> <p>c) range</p> <p>d) What is the value at <math>f(2.5)</math>?</p>
Time (hours)	Water (thousand gallons)																			
<p><u>Graph</u></p> 	<p><u>Rate of Change:</u></p> <p><u>Start Point (y-intercept):</u></p> <p><u>Equation:</u></p>	<p>e) What is the value at <math>f(4)</math>?</p> <p>f) What <math>x</math>-value makes <math>f(x) = 328</math> thousand true?</p>																		

For each of the following, determine if it is linear increasing or decreasing or if it is exponential growth or decay. Then determine the equation of the function.

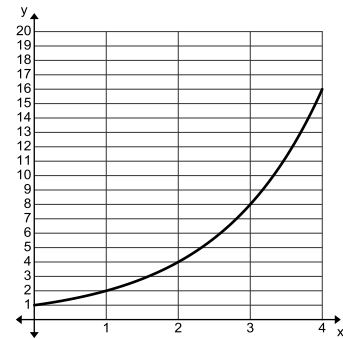
18.

You have a 40 dollars iTunes gift card. You decide to buy some songs for 2 dollar per song.

19.

x	y
0	1
1	3
2	9
3	27
4	81

20.



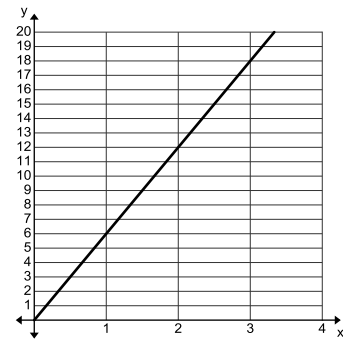
21.

x	y
0	8
1	13
2	18
3	23
4	28

22.

You wake up with 2 chicken pox and each day the number of chicken pox you have triples.

23.



24. Evaluate using  $f(x) = -3x + 5$  and

$$g(x) = 8\left(\frac{1}{2}\right)^x$$

a)  $f(-1)$

b)  $g(-1)$

c)  $\frac{f(-1)}{g(-1)}$

d)  $f(2)$

e)  $g(2)$

f)  $f(2) + g(2)$

Determine the multiplier for each growth or decay rate.

25. 20% growth

26. 12% decay

27. 1% growth

28. 98% decay

29. 0.85% growth

30. 2.5% decay



Determine if the following tables represent a linear function ( $f(x) = mx + b$ ), an exponential function ( $f(x) = a \cdot b^x$ ), or neither. If the function is linear or exponential, write the equation.

37.  $f(x) =$

$x$	$f(x)$
0	2
1	8
2	32
3	128
4	512

38.  $f(x) =$

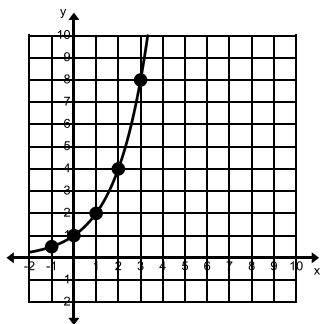
$x$	$f(x)$
0	15
1	10
2	5
3	0
4	-5

39.  $f(x) =$

$x$	$f(x)$
0	0
1	5
2	20
3	45
4	80

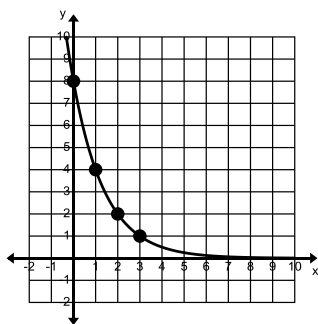
Determine the Exponential Equation,  $f(x) = a \cdot b^x$ , for each of the following graphs.

40)



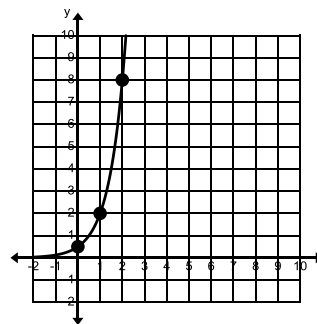
$f(x) =$


41)



$f(x) =$


42)



$f(x) =$
