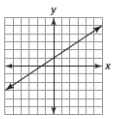
F-IF.C: Skills Practice Problems

1.3 #7-12

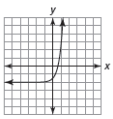
Choose the graph that represents each function.

7. $f(x) = \frac{2}{3}x + 2$

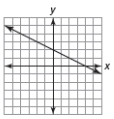
Graph A



Graph B



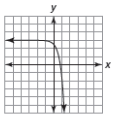
Graph C



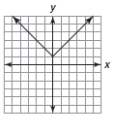
Graph A

8. $f(x) = -x^2 + 4$

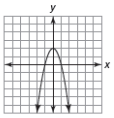
Graph A



Graph B

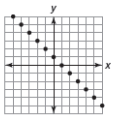


Graph C

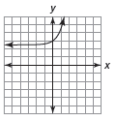


9. $f(x) = 2^x + 5$

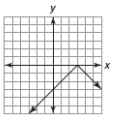
Graph A



Graph B

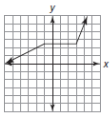


Graph C

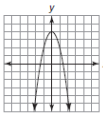


10. $f(x) = |x - 6|$

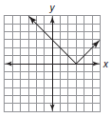
Graph A



Graph B

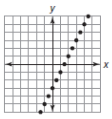


Graph C

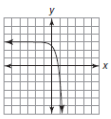


11. $f(x) = 2x - 6$, where x is an integer

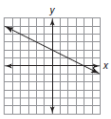
Graph A



Graph B

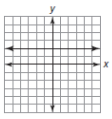


Graph C

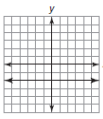


12. $f(x) = -4$

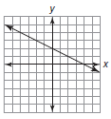
Graph A



Graph B



Graph C



1.4 #1-10

Choose the appropriate function family or families to complete each sentence based on the given characteristic(s).

linear functions	quadratic functions
exponential functions	linear absolute value functions

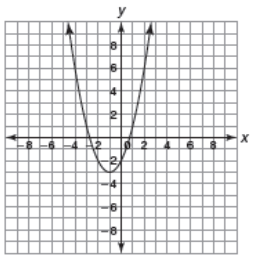
1. The graph of this function family is a straight line. The function family is linear functions.
2. The graph of this function family has an increasing interval and a decreasing interval. The function family is _____.
3. The graph of this function family has an absolute minimum. The function family is _____.
4. The graph of this function family in decreasing over the entire domain. The function family is _____.
5. The graph of this function family forms a V shape. The function family is _____.
6. The graph of this function family has an increasing interval and a decreasing interval and forms a U shape. The function family is _____.
7. The graph of this function family does not have an absolute maximum or absolute minimum and is a smooth curve. The function family is _____.
8. The graph of this function family has an absolute maximum or absolute minimum and is made up straight lines. The function family is _____.
9. The graph of this function family is made up straight lines and does not have an absolute maximum or absolute minimum. The function family is _____.
10. The graph of this function family decreases over the entire domain and is a smooth curve. The function family is _____.

1.4 #17-22

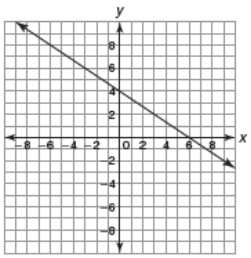
Choose the function family represented by each graph.

linear function	quadratic function	exponential function
linear absolute value function	linear piecewise function	

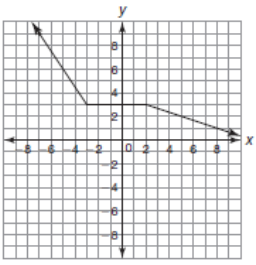
17.



18.

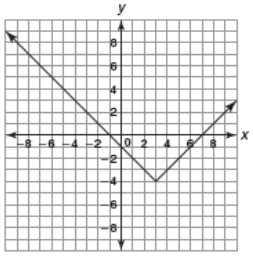


21.

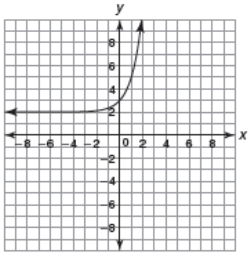


The graph represents a quadratic function.

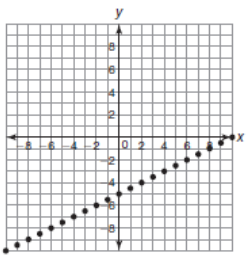
19.



20.



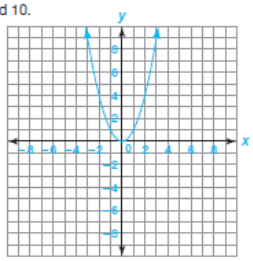
22.



1.4 #11-16

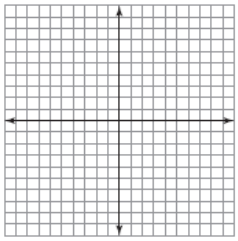
Create an equation and sketch a graph for a function with each set of given characteristics. Use values that are any real numbers between −10 and 10.

11. Create an equation and sketch a graph that:
- is a smooth curve,
- is continuous,
- has a minimum, and
- is quadratic.

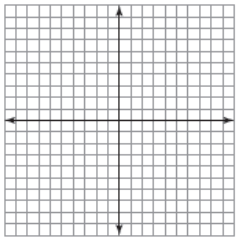


Answers will vary.
$f(x) = x^2$

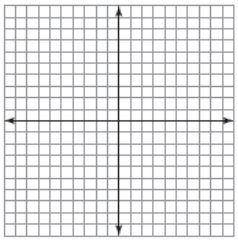
12. Create an equation and sketch a graph that:
- is linear,
- is discrete, and
- is decreasing across the entire domain.



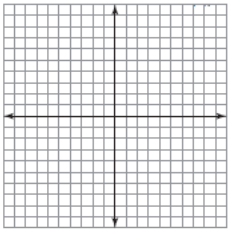
13. Create an equation and sketch a graph that:
- is a smooth curve,
- is increasing across the entire domain,
- is continuous, and
- is exponential.



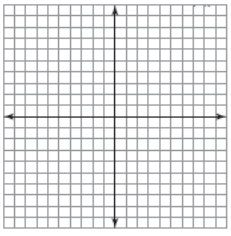
14. Create an equation and sketch a graph that:
- has a maximum,
- is continuous, and
- is a linear absolute value function.



15. Create an equation and sketch a graph that:
- is linear,
- is continuous,
- is neither increasing nor decreasing across the entire domain, and
- does not pass through the origin.

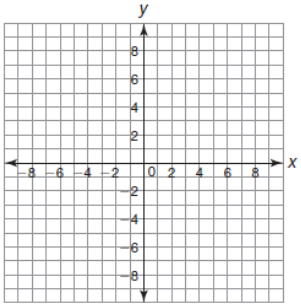


16. Create an equation and sketch a graph that:
- is discrete,
- has a maximum,
- does not pass through the origin, and
- is quadratic.



24. $f(x) = -2 \cdot \frac{1}{2}^x$

x	f(x)
−2	
−1	
0	
1	
2	

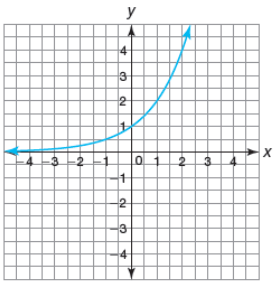


5.2 #19-24

Complete each table and graph the function. Identify the *x*-intercept, *y*-intercept, asymptote, domain, range, and interval(s) of increase or decrease for the function.

19. $f(x) = 2^x$

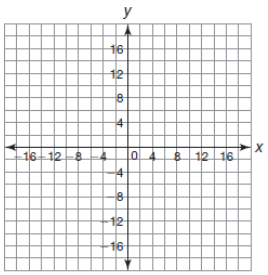
x	f(x)
−2	$\frac{1}{4}$
−1	$\frac{1}{2}$
0	1
1	2
2	4



x-intercept: none
y-intercept: (0, 1)
asymptote: $y = 0$
domain: all real numbers
range: $y > 0$
interval(s) of increase or decrease: increasing over the entire domain

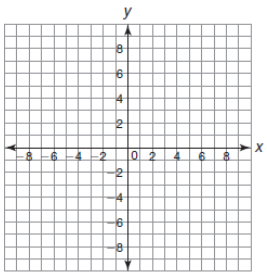
20. $f(x) = 4^x$

x	f(x)
−2	
−1	
0	
1	
2	



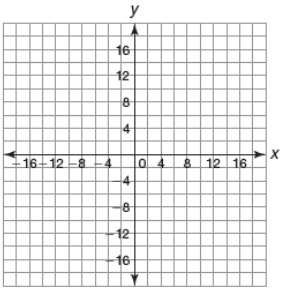
21. $f(x) = \frac{1}{3}^x$

x	f(x)
−2	
−1	
0	
1	
2	



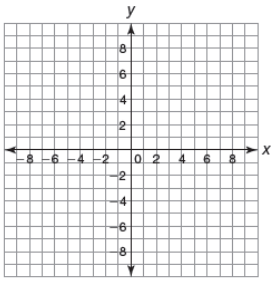
22. $f(x) = \frac{1}{4}^x$

x	f(x)
−2	
−1	
0	
1	
2	



23. $f(x) = -2 \cdot 2^x$

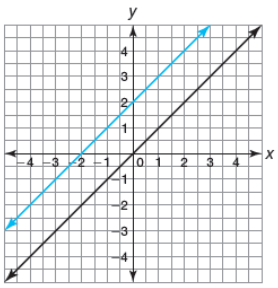
x	f(x)
−2	
−1	
0	
1	
2	



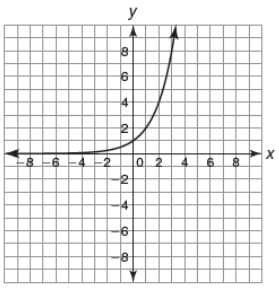
5.3 #31-38

Each coordinate plane shows the graph of $f(x)$. Sketch the graph of $g(x)$.

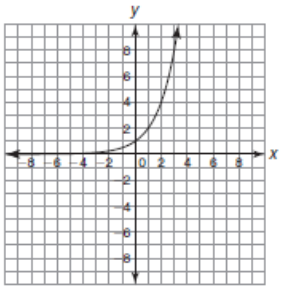
31. $g(x) = f(x) + 2$



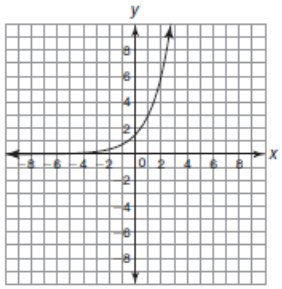
32. $g(x) = f(x) + 4$



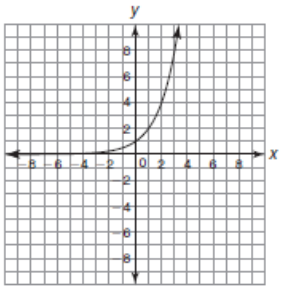
33. $g(x) = f(x) - 2$



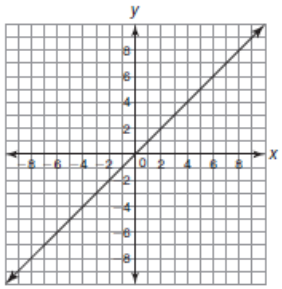
34. $g(x) = f(x - 3)$



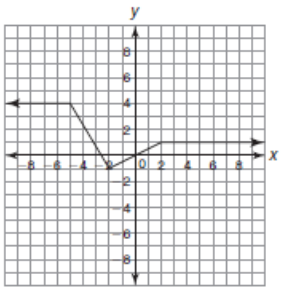
35. $g(x) = f(x + 3)$



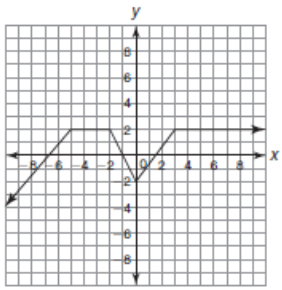
36. $g(x) = f(x - 4)$



37. $g(x) = f(x) + 5$



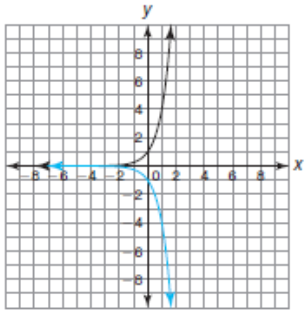
38. $g(x) = f(x + 5)$



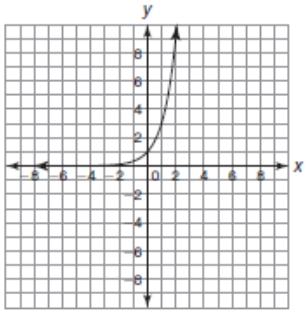
5.4 #13-18

Each coordinate plane shows the graph of $f(x)$. Sketch the graph of $g(x)$.

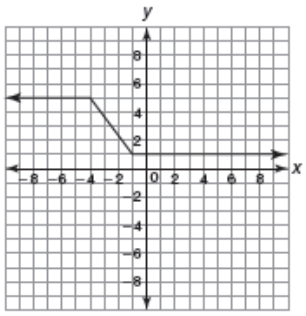
13. $g(x) = -f(x)$



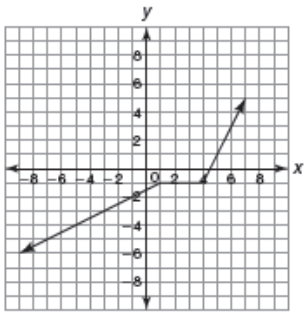
14. $g(x) = f(-x)$



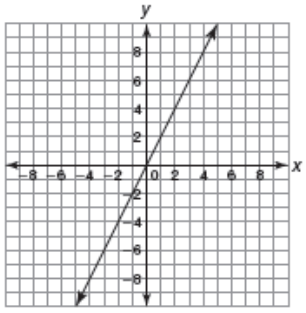
15. $g(x) = f(-x)$



16. $g(x) = -f(x)$



17. $g(x) = -f(x)$



18. $g(x) = f(-x)$