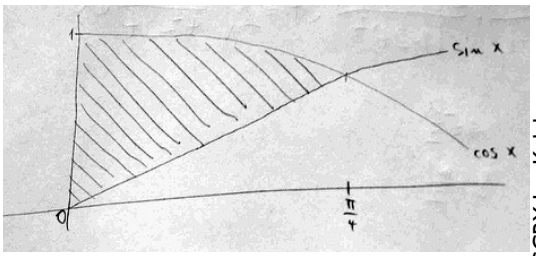
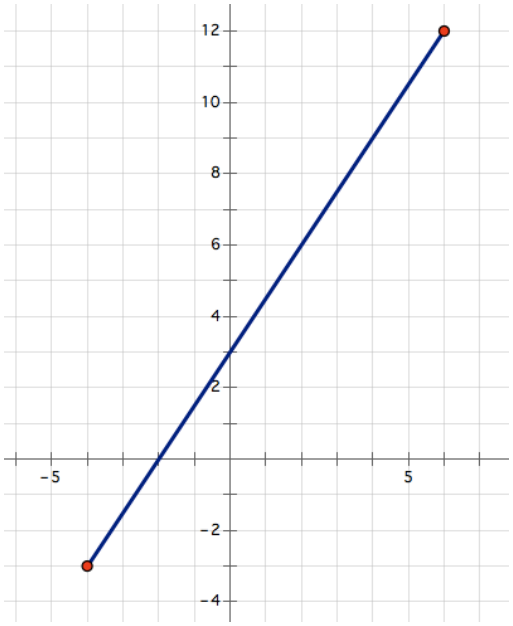
3.6 Interpreting Functions

A Practice Understanding Task

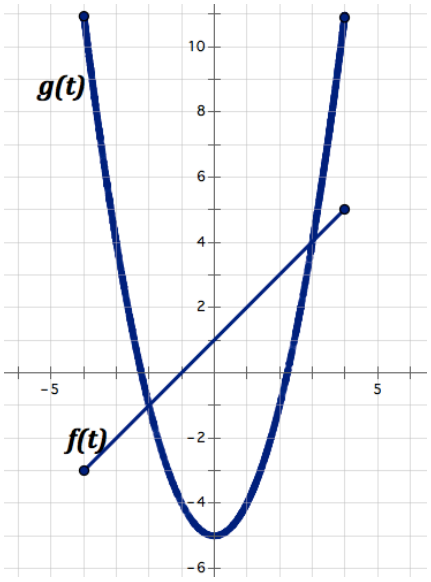


Given the graph of *f(x),* answer the following questions. Unless otherwise specified, restrict the domain of the function to what you see in the graph below. Approximations are appropriate answers.

1. What is *f*(2)?
2. For what values, if any, does *f(x)* = 3?
3. What is the x-intercept?
4. What is the domain of *f(x)*?
5. On what intervals is *f(x)* > 0?
6. On what intervals is *f(x)* increasing?
7. On what intervals is *f(x)* decreasing?
8. For what values, if any, is *f(x)* > 3?



Consider the linear graph of $f(t)$ and the nonlinear graph of $g(t)$ to answer questions 9-14. Approximations are appropriate answers.



9. Where is $f(t) = g(t)$?

10. Where is $f(t) > g(t)$?

11. What is $f(0) + g(0)$?

12. What is $f(-1) + g(-1)$?

13. Which is greater: $f(0)$ or $g(-3)$?

14. Graph: $f(t) + g(t)$ from [-1, 3]

The following table of values represents two continuous functions, $f(x)$ and $g(x)$. Use the table to answer the following questions:

x	*f(x)*	*g(x)*
-5	*44*	*-13*
-4	*30*	*-9*
-3	*20*	*-5*
-2	*12*	*-1*
-1	*6*	*3*
0	*2*	*7*
1	*0*	*11*
2	*0*	*15*
3	*2*	*19*
4	*6*	*23*
5	*12*	*27*
6	*20*	*31*

15. What is $g(-3)$?

16. For what value(s) is $f(x) = 0$?

17. For what values does $f(x)$ seem to be increasing?

18. On what interval is $g(x) > f(x)$

19. Which function is changing faster in the interval [-5, -1]? Why?

Use the following relationships to answer the questions below.

$h(x) = 2^x$ $f(x) = 3x - 2$ $g(x) = 8$ $x = 4$ $y = 5x + 1$

20. Which of the above relations are functions? Explain.

21. Find *f(2), g(2), and h(2).*

22. Write the equation for *g(x) + h(x).*

23. Where is *g(x)< h(x)* ?

24. Where is *f(x)* increasing?

25. Which of the above functions has the fastest growth rate?

Create a graph for each of the following functions, using the given conditions

26. This function has the following features: *f(2)* is positive; *f(-2) = 0, f(x) is always Increasing and has a domain of All Real Numbers.*

27. This function has the following features: *f(3)> f(6); f(1) = 0; f(2) = 4; f(x) is increasing from [-5, 3); has a domain from [-5, 10]*

28. This function has the following features: *f(x) has a constant rate of change; f(5) = 0*

29. Create your own conditions- have at least three and then create examples where the solution could be different graphs.