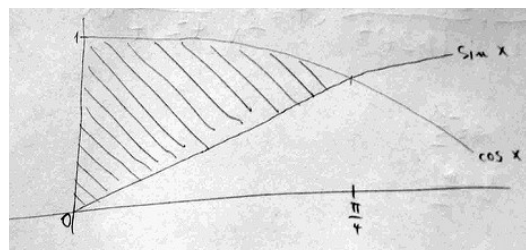


3.6 Interpreting Functions

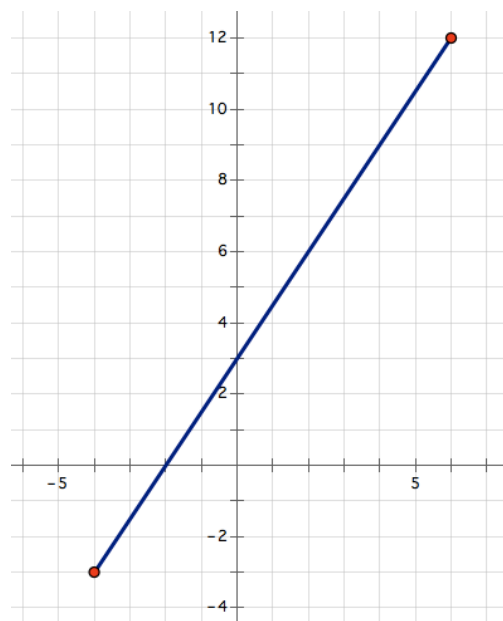
A Practice Understanding Task



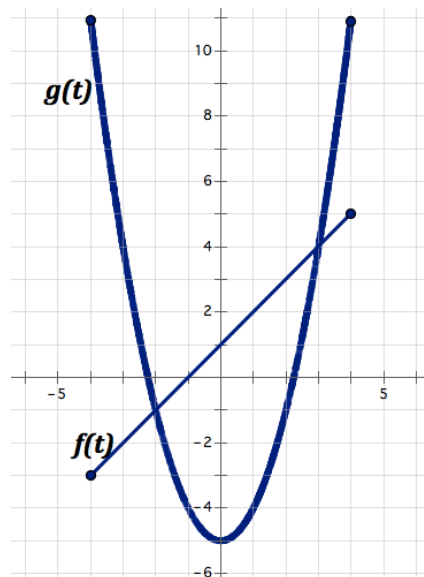
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Given the graph of $f(x)$, answer the following questions. Unless otherwise specified, restrict the domain of the function to what you see in the graph below. Approximations are appropriate answers.

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.

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

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.