3.6 Interpreting Functions
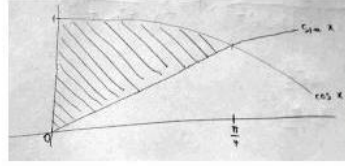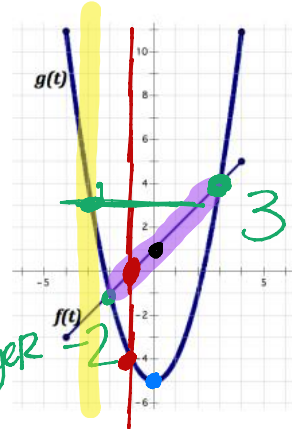## A Practice Understanding Task

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.

$f(x) = y \rightarrow x = 2$

1. What is *f*(2)?   **6**

2. For what values, if any, does *f(x)* = 3? $y = 3$ $X = 0$

3. What is the x-intercept?   (-2, 0)

4. What is the domain of *f(x)*?   [-4, 6]

5. On what intervals is *f(x)* > 0? $y > 0$ (-2, 6)

6. On what intervals is *f(x)* increasing?   (-4, 6)

7. On what intervals is *f(x)* decreasing?   none

8. For what values, if any, is *f(x)* > 3? $y > 3$ (0, 6)

-2

6

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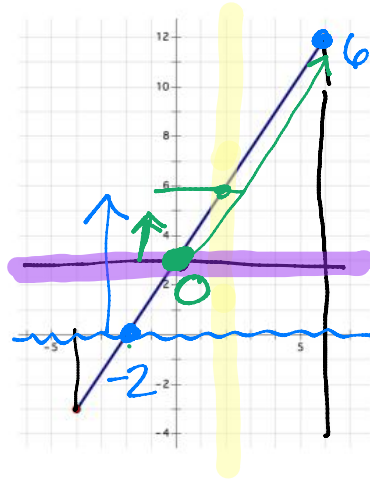
Consider the linear graph of *f(t)* and the nonlinear graph of *g(t)* to answer questions 9-14. Approximations are appropriate answers.

9. Where is *f(t)* = *g(t)*?   (-2, -1)   (3, 4)

10. Where is *f(t)* > *g(t)* ?   (-2, 3)

11. What is *f(0)* + *g(0)* ?   1 + -5 = -4

12. What is *f(-1)* + *g(-1)* ?   0 + -4 = -4

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

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

X = 0

X = -1

g(t)

f(t)

3

-2

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

(handwritten: -38/16 at top of columns)

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 $g(-3)$? *(handwritten: →x=-3, -5)*

16. For what value(s) is $f(x) = 0$? *(handwritten: x=1 x=2)*

17. For what values does $f(x)$ seem to be increasing? *(handwritten: [2,6] or (2,6))*

18. On what interval is $g(x) > f(x)$ *(handwritten: (0,6))*

19. Which function is changing faster in the interval [-5, -1]? Why? *(handwritten: f(x) decreases faster at Rate)*

(handwritten top right in blue: We need to finish this before your quiz :))

Use the following relationships to answer the questions below.

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

(handwritten: y=8 under g(x) = 8)

20. Which of the above relations are functions? Explain. *(handwritten: All but x=4 blc Fails the Vertical line test)*

21. Find $f(2)$, $g(2)$, and $h(2)$. *(handwritten: →$2^x = 2^2 = 4$, 4 8)*
(handwritten left: X=2, 3(2)-2)

22. Write the equation for $g(x) + h(x)$. *(handwritten: $8 + 2^x$)*

23. Where is $g(x) - h(x)$? *(crossed out)*

24. Where is $f(x)$ increasing? *(handwritten: Linear → positive $(-\infty, \infty)$)*

25. Which of the above functions has the fastest growth rate? *(handwritten: h(x) → multiply)*

Create a graph for each of the following functions, using the given conditions
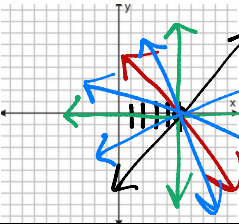
26. This function has the following features: $f(2)$ is positive; $f(-2) = 0$, $f(x)$ is always Increasing and has a domain of All Real Numbers.
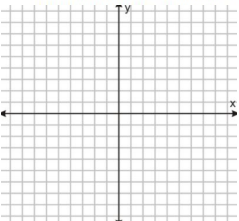
27. This function has the following features: $f(3) > f(6)$; $f(1) = 0$; $f(2) = 4$; $f(x)$ is increasing from [-5, 3); has a domain from [-5, 10]
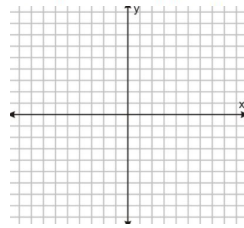
28. This function has the following features: $f(x)$ has a constant rate of change; $f(5) = 0$ *(handwritten: Linear (5,0) $f(5)=0$ $f(x)=y$)*