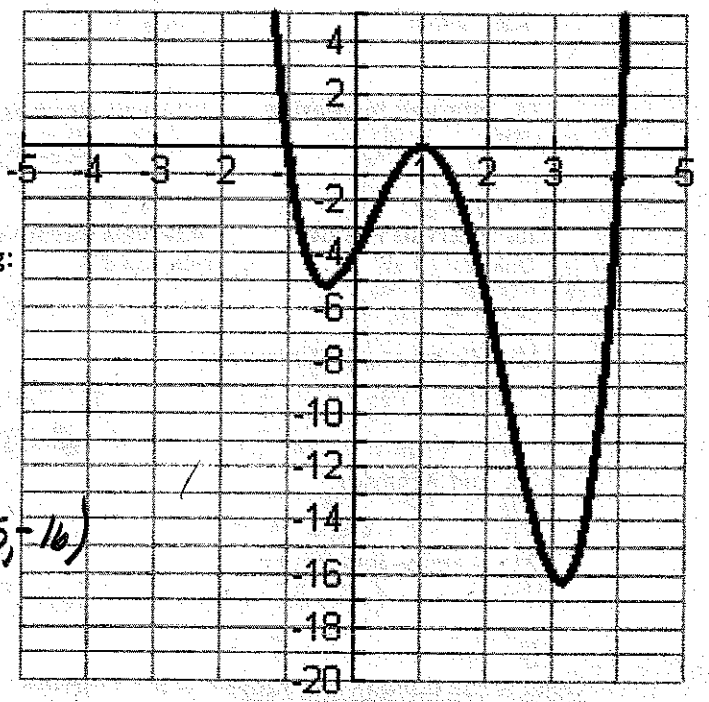
Name: Key - Answers Only Date:

DBA: Function Unit Test Review

Function Questions: Use the graph below to answer all function questions.



1. Is it function?

yes, each x has 1y.

2. Domain: $(-\infty, \infty)$ Range: $[-16.25, \infty)$

3. Intervals Increasing: $(-.5, 1)$ $(3.25, \infty)$ Intervals Decreasing: $(-\infty, -.5)$ $(1, 3.25)$

4. Intervals Positive: $(-\infty, -1)$ $(4, \infty)$ Intervals Negative: $(-1, 1)$ $(1, 4)$

5. Maximum(s)/Minimum(s):

rel min $(-.5, -5)$ abs min $(3.25, -16)$

rel max $(1, 0)$

6. End Behavior:

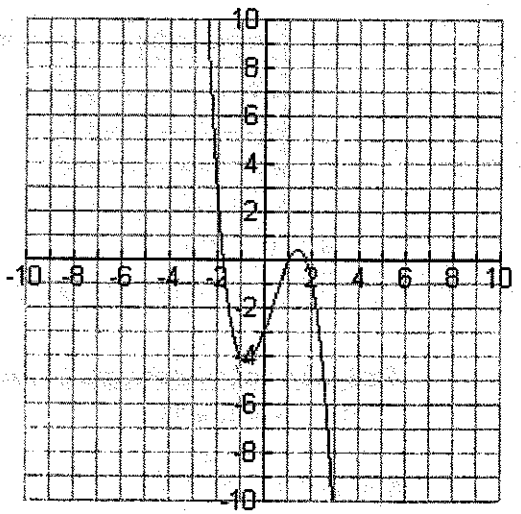
as $x \to \infty$ $y \to \infty$ as $x \to -\infty$, $y \to \infty$

7. x- and y- intercepts:

$(-1, 0)$ $(1, 0)$ $(4, 0)$

8. Is it function?

yes, each x has 1y.



9. Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

10. Intervals Increasing: $(-1, 1.5)$ Intervals Decreasing: $(-\infty, -1)(1.5, \infty)$

11. Intervals Positive: $(-\infty, -1.8)$ $(1, 1.8)$ Intervals Negative: $(-1.8, 1)$ $(1.8, \infty)$

12. Maximum(s)/Minimum(s):

rel max $(1.5, .5)$

rel min $(-1, -4)$

13. End Behavior:

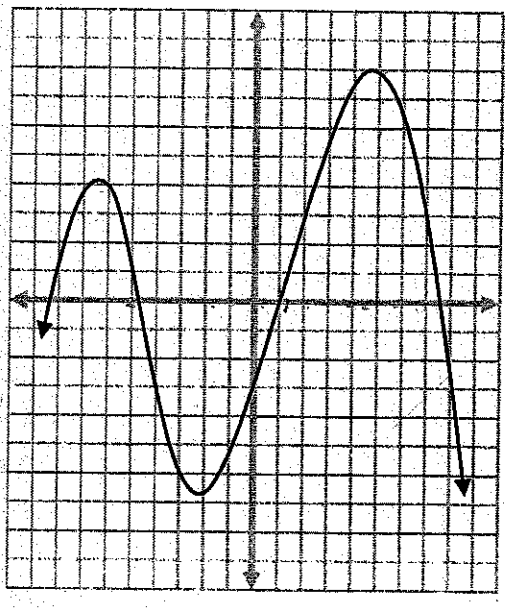
as $x \to \infty$ $y \to -\infty$; as $x \to -\infty$, $y \to \infty$

14. x- and y- intercepts:

x-int $(-1.8, 0)$ $(1, 0)$ $(1.8, 0)$

y-int $(0, -3)$

Function Questions: Use the graph below to answer all function questions.



15. Is it function? yes. each x has 1 y

16. Domain: $(-\infty, \infty)$ Range: $(-\infty, 4.5)$

17. Intervals Increasing: $(-\infty, -6.5)$ $(-2.25, 4.5)$ Intervals Decreasing: $(-6.5, -2.25)$ $(4.5, \infty)$

18. Intervals Positive: $(-8.25, -4.5)$ $(1, 7.75)$ Intervals Negative: $(-\infty, -8.25)$ $(-4.5, 1)$ $(7.75, \infty)$

19. Maximum(s)/Minimum(s):
abs max $(4.5, \infty)$ rel min $(-2.25, -6.75)$
rel max $(-6.5, 4)$

20. End Behavior:
as $x \to \infty, y \to -\infty$
as $x \to -\infty, y \to -\infty$

21. x- and y- intercepts:
x-int $(-4.75, 0)(-8.25, 0)(1, 0)(7.75, 0)$
y-int $(0, -3)$

What is the domain and range? Is it a function?

22. {(6, 1), (-3, 8), (1,-3)}

D $\{-3, 1, 6\}$
R $\{-3, 1, 8\}$
yes!

23.

Independent	Dependent
-1	-1
2	6
5	-3
2	7

D: $\{-1, 2, 5\}$
R: $\{-3, -1, 6, 7\}$
no!

Find the x and y intercepts of each.

24. $3x + 4y = 24$

x-int $(8, 0)$
y-int $(0, 6)$

25. $-2y = 6x + 18$

x-int $(-3, 0)$
y-int $(0, -9)$

26.

x	f(x)
-3	6
-1	0
0	8
4	-10
13	0

x-int $(-1, 0)(13, 0)$
y-int $(0, 8)$

Solving Equations:

27. $-12 = 2 + 5v + 2v$

$v = -2$

28. $10p + 9 - 11 - p = -2(2p + 4) - 3(2p - 2)$

$p = 0$

29. $-4k + 2(5k - 6) = -3k - 39$

$k = -3$

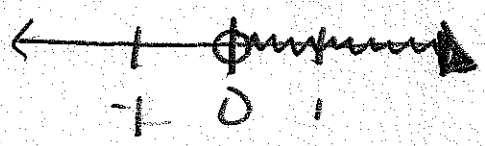
30. $15 = \frac{4x}{5} - 13$

$x = 35$

Solving Inequalities, graph your solution:

31. $-2(1 - 5x) > -(x + 1) - 1$

$x > 0$

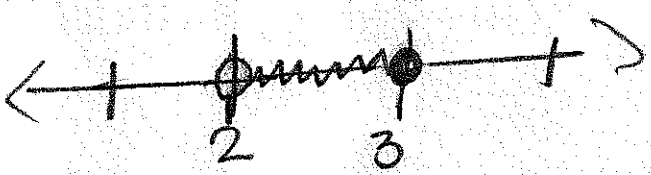


32. $3x - 10 > 3(x - 2)$

No Solution

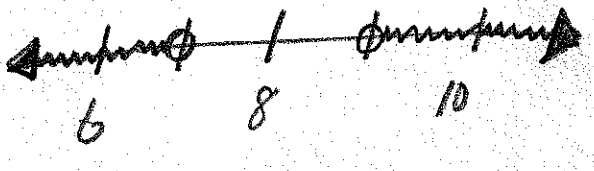
33. $-33 \leq -7n - 12 < -26$

$2 \leq n \leq 3$



34. $2x - 3 < 11$ or $-8x - 10 < -82$

$x < 7$ or $x > 9$



Function Notation:

Let: $f(x) = -x^2 + 1$ $g(x) = 2x^2 + 4x - 8$ $h(x) = 10 - 3x$ $k(x) = 5x^3 - 2x^2 + 3x$

35. Simplify: $g(x) - k(x)$

$-5x^3 + 4x^2 + x - 8$

36. Simplify: $h(x) \cdot f(x)$

$3x^3 - 10x^2 - 3x + 10$

37. Evaluate $f(-3)$

-8

38. Find x if $h(x) = 10$

$x = 0$

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DBA: Function Unit Test Review Part 2 (#39 – 45)

39. Tommy earned \$56, \$95, \$105 and \$125 the past four weeks. Did he meet his goal of earning an average of \$100 each week? No.

For #40-44 write an inequality or equation that models the situation. Make sure you define your variables if needed. Solve!!!

40. Tammy scored 75, 82, 97, 68 and one other score. If she wants to average no more than 85, what does that last score need to be? $n \leq 103$

less than 103

41. Rick is buying the math teachers donuts and coffee. Donuts cost \$10 per dozen and coffee costs \$3.50 per cup. If he buys 3 dozen donuts, how many coffees can he buy to spend at most order if he wants to spend at most \$75?

$n \leq 12.85$

no more than 12 coffees

42. Helena has \$25,000 in her bank account and saves \$3,200 every month. When will she have at least \$50,000?

$m \geq 7.8125$

8 months

43. a. The sum of 3 consecutive even integers is greater than 120.

$n > 38$, 40, 42

b. The sum of 2 consecutive odd integers is less than 100.

n = 1st int, $n+2$ = 2nd int

49 + 51

c. The sum of 4 consecutive integers is 570.

n = 1st; $n+1$ = 2nd; $n+2$ = 3rd; $n+3$ = 4th

$n = 141$; $n+1 = 142$; $n+2 = 143$; $n+3 = 144$

44. The base of a parallelogram is 4 more than twice the height. What height would allow a perimeter of 300 cm?

$h = 48.7$ cm

45 a. Tommy has $85 in his account and deposits $23 each week. This situation can be represented by the equation $a = 85 + 23w$ where a is the amount in the account and w is the number of weeks. How many weeks does it take Tommy to have $500?

$W = 18.0$ wk.

b. The height of a basketball being thrown at 14 ft/sec from 5 feet off the ground is modeled by the function $h(t) = -7t^2 + 2.1t + 5$, where h is the height in feet and t is the time in seconds that the ball is in the air. According the model, what is the height after 1.5 seconds?

−7.6 ft is not possible,

so h = 0 ft (on ground).