Friday, January 13 is the last day Ms. Hansen will accept any late/missing/extra credit work for 2nd quarter

-->This includes any test/quiz retakes

Questions on 4.6 HW? We are taking a quiz next class, and will work on a practice quiz soon...

Practice Quiz

1. If the following points exist in $f(x)$, fill in what would they be in the inverse.
$f(x): \{(-1,2), (-3,4), (-5,6)\}$

$f^{-1}(x):$ $\{(2,-1), (4,-3), (6,-5)\}$

2. If a linear function, f(x), has the slope $-\frac{7}{9}$, what would the slope be in the inverse, $f^{-1}(x)$?

$-\frac{9}{7}$ (reciprocal)

3. If the dependent variable in f(x) is feet, what is the independent variable in $f^{-1}(x)$?

feet

4. If the dependent variable in $f^{-1}(x)$ is perimeter, what is the independent variable in f(x)?

perimeter

5. If a function, f(x), has the following domain and range, fill in the domain and range for its inverse, $f^{-1}(x)$.

f(x) domain: $(-\infty, 4]$

f(x) range: $(3, \infty)$

$f^{-1}(x)$ domain: $(3, \infty)$

$f^{-1}(x)$ range: $(-\infty, 4]$

6. A function, f(x), and its inverse, $f^{-1}(x)$, reflect across the special line y=__X__.
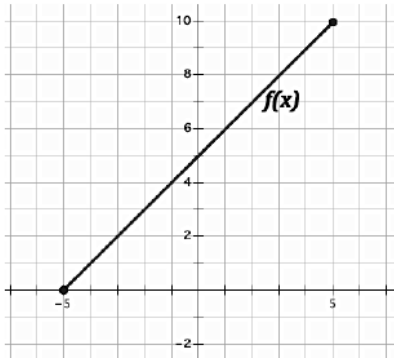
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2
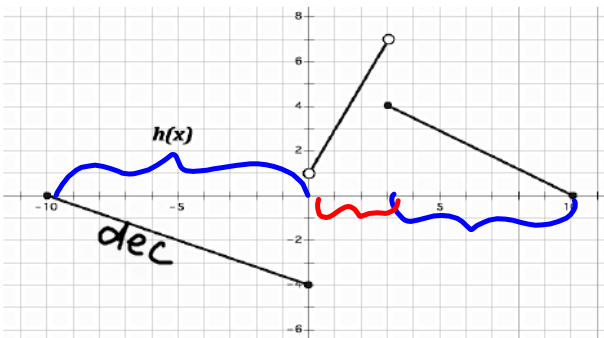
Given each representation of a function, determine the domain and range. Then indicate whether the function is discrete, continuous, or discontinuous and increasing, decreasing, or constant.

discontinuous

1.

f(x)

2.

h(x)

dec

Description of Function:

Description of Function:

domain: [-10, 10]; range: [-4, 7)

*decreasing: (-10, 0) & (3, 10)

increasing: (0, 3)

constant: nowhere

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3

Solve the following for the indicated variable.

11. $C = 2\pi r$; Solve for r.

12. $A = \pi r^2$; Solve for r.

13. $V = \pi r^2 h$; Solve for h.

14. $V = \pi r^2 h$; Solve for r.

$$\frac{V}{\pi h} \quad \frac{V}{\pi h}$$

$$\sqrt{\frac{V}{\pi h}} = \sqrt{r^2} \longrightarrow r = \sqrt{\frac{V}{\pi h}}$$

15. $V = e^3$; Solve for e.

16. $A = \frac{b_1 + b_2}{2} h$; Solve for h
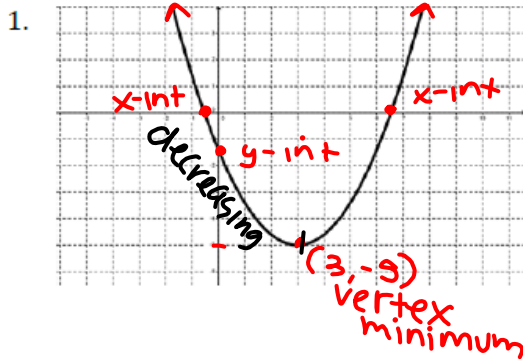
4.7 More Features, More Functions
A Practice Understanding Task
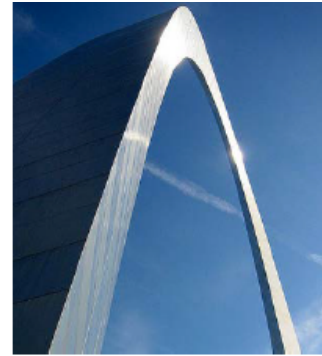
Part I: Features of Functions

Find the following key features for each function:
  a. Domain and range
  b. Intercepts (x & y) — points
  c. Location and value of maxima/minima (y-values)
  d. Intervals where function is increasing or decreasing

— intervals

1.

decreasing   x-int   y-int   x-int
(3,-9) vertex minimum

a) domain: $(-\infty, \infty)$
  range: $[-5, \infty)$
b) x-intercepts: $(-\frac{1}{2}, 0)$ &
     $(6\frac{1}{2}, 0)$
  y-intercept: $(0, -1\frac{1}{2})$
c) min: $(3, -5)$
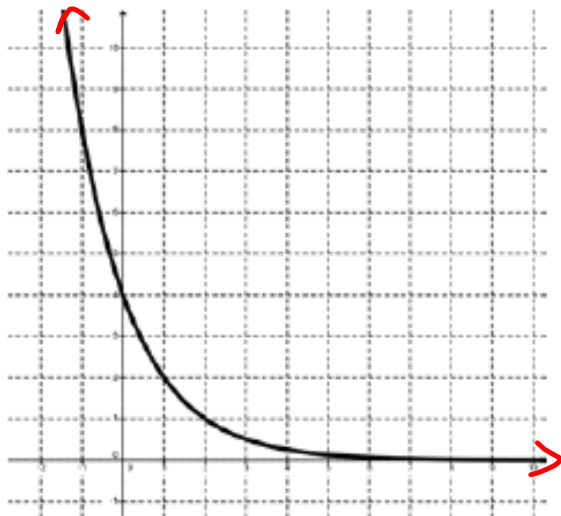d) decreasing: $(-\infty, 3)$
  increasing: $(3, \infty)$

2.

min
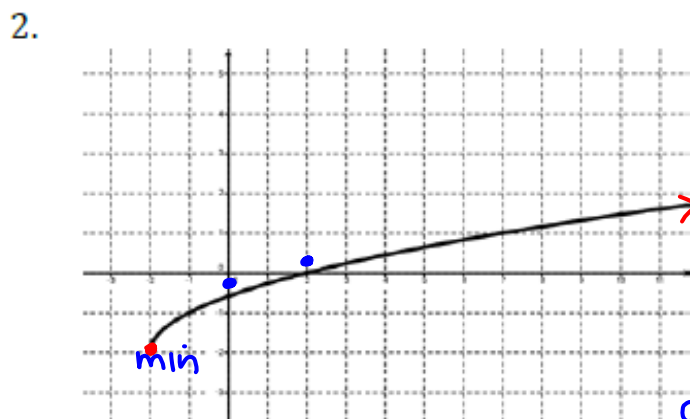
a) domain: $[-2, \infty)$
  range: $[-2, \infty)$
b) x-intercept: $(2, 0)$
  y-intercept: $(0, -\frac{1}{2})$
c) no max
  min: $(-2, -2)$
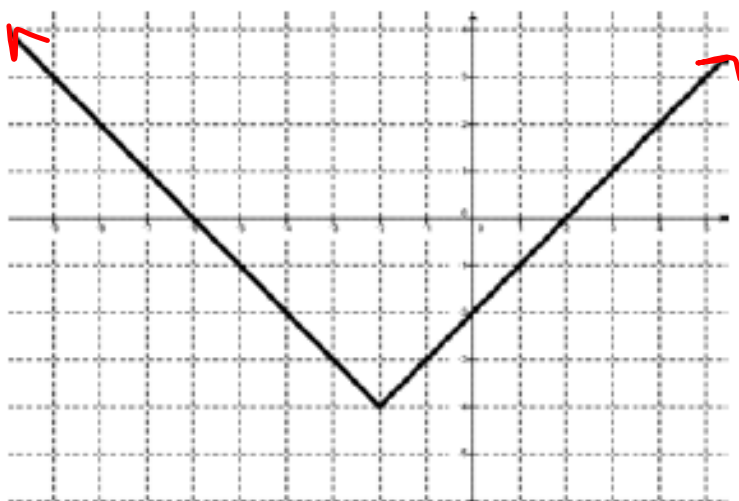d) increasing:
     $(-2, \infty)$
  decreasing:
     nowhere

3.

x	$f(x)$
-5	-14
1	4
-2	-5
3	10
5	16
0	1
-1	-2

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4.

5. $g(x) = -\frac{1}{3}(x+4)^2 - 6$

6.

7.
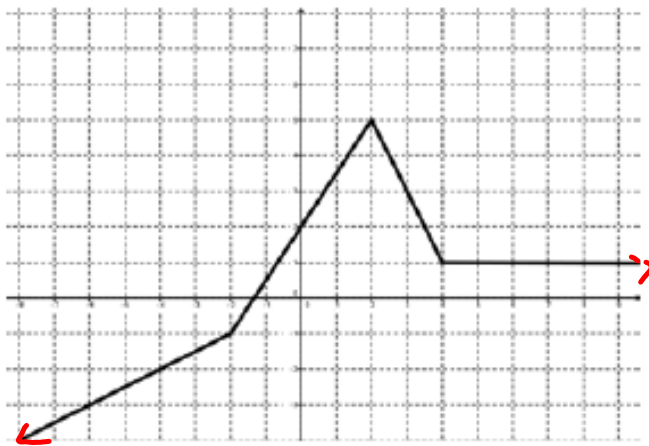
8. $h(x) = \sqrt{x - 3}$

Part II: Creating Functions

for 3 problems between 9- 20

Directions: Write ~~two~~ different functions that meet the given requirements.

one

9. A function that is always increasing

10. A function that is symmetrical about the *y*-axis

11. A function with a minimum of -2 at *x* =5

12. A function that is decreasing from (-∞, -3) then increasing from [-3, ∞)

13. A function with zero real roots

14. A function that has a domain from [3, ∞)

15. A function with a range from [3, ∞)

16. A function with a constant rate of change

17. A function whose second difference is a constant rate of change

18. A function whose domain is the set of all natural numbers, and has a constant difference from one value to the next.

19. A function with *x*-intercepts at (-3, 0) and (3,0)

20. Create your own requirements.

Jan 11-1:29 PM

Homework

Finish 4.7 "Ready, Set, Go"

Mar 28-9:36 AM