HOMEWORK: TRANSFORMATIONS

NAME: _____ DAY 5 DUE: _____

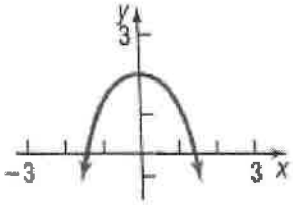
1. Match each graph to the function.

Exercises

In Problems 7–18, match each graph to one of the following functions.

A. $y = x^2 + 2$	B. $y = -x^2 + 2$	C. $y = \lvert x\rvert + 2$	D. $y = -\lvert x\rvert + 2$
E. $y = (x - 2)^2$	F. $y = -(x + 2)^2$	G. $y = \lvert x - 2\rvert$	H. $y = -\lvert x + 2\rvert$
I. $y = 2x^2$	J. $y = -2x^2$	K. $y = 2\lvert x\rvert$	L. $y = -2\lvert x\rvert$

7.



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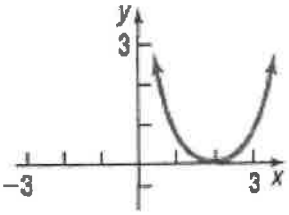

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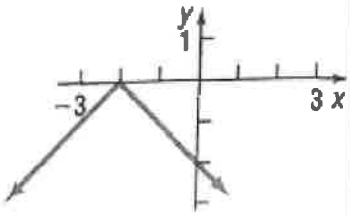

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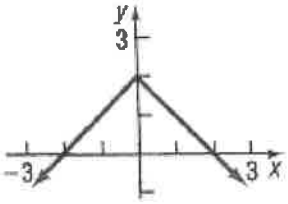

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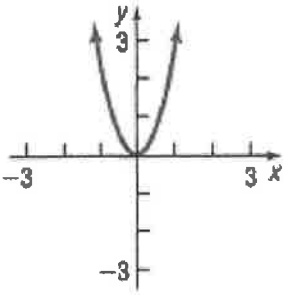
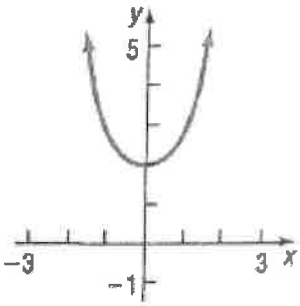


12.



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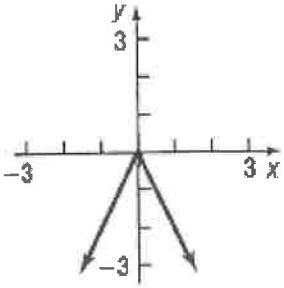

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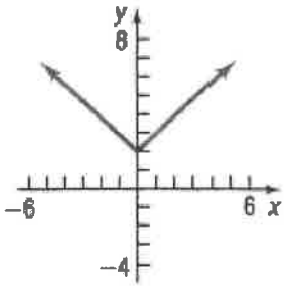

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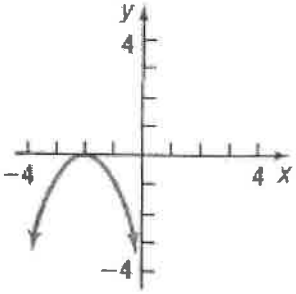

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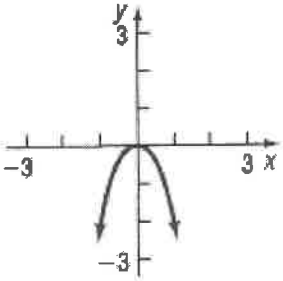

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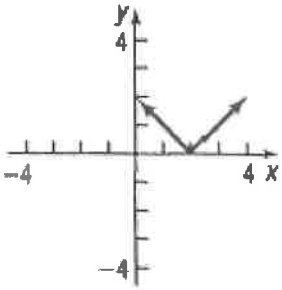
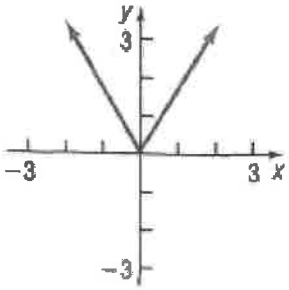


18.



$y = x^2$

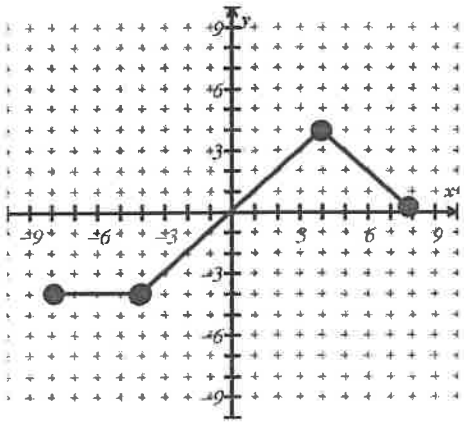
If ~~y=x~~ is transformed as described below, write the new function.

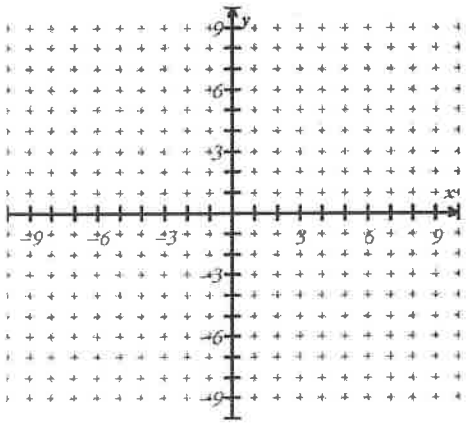
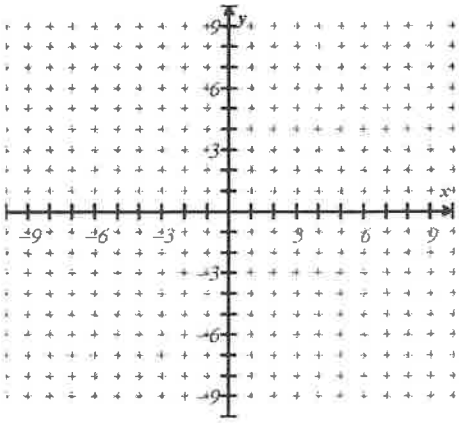
2. Shifted right 4 units	3. Shifted up 4 units
4. Reflected about the y-axis	5. Vertically stretched by a factor of 4

If $y = \sqrt{x}$ is transformed as described below, write the new function.

6. Shifted up 2 units. Reflect about the x-axis. Reflect about the y-axis.	7. Reflect about the x-axis. Shift up 2 units. Shift left 3 units.

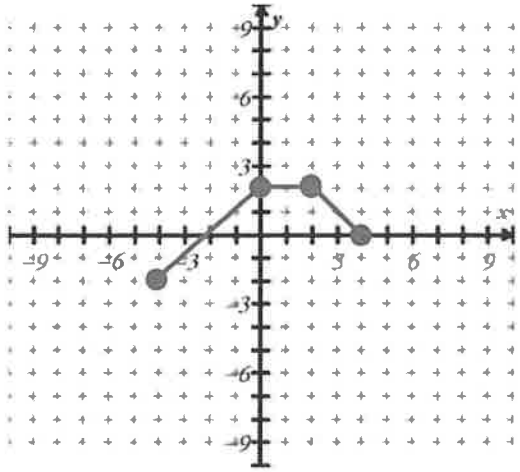
For #8 and #9, the graph of a function, f, is illustrated in the figure.



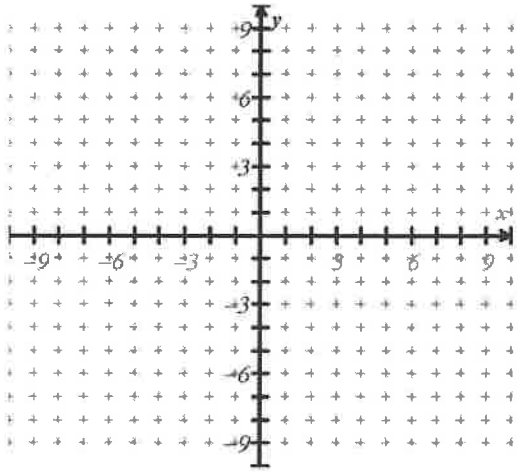
8. Draw the graph of $y = \lvert f(x) \rvert$ 	9. $y = f(\lvert x \rvert)$ 

10. The graph of f is illustrated. Graph the following functions.

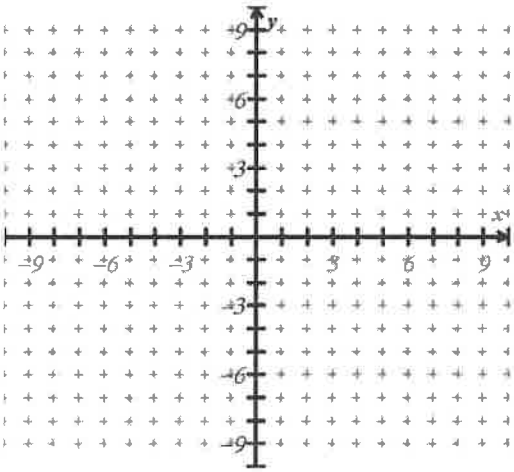
Graph of f(x)



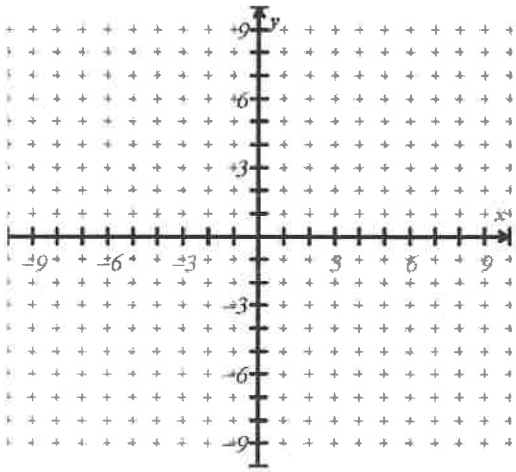
a) G(x) = f(x + 2)



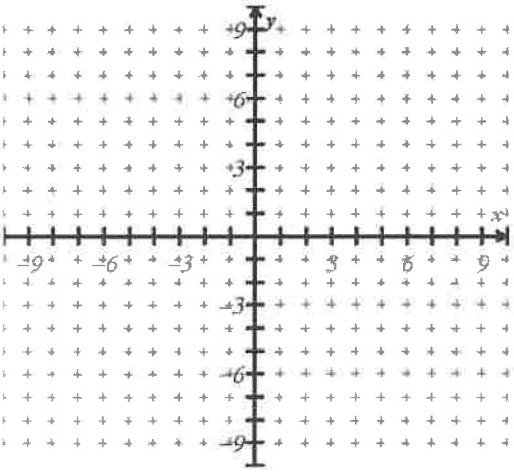
b) P(x) = –f(x)



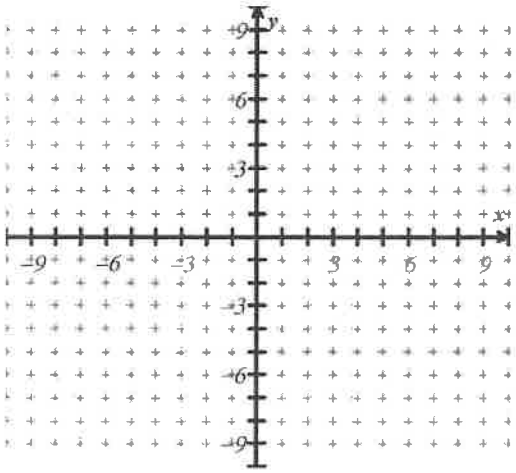
c) H(x) = f(x + 1) – 2



d) g(x) = f(–x)

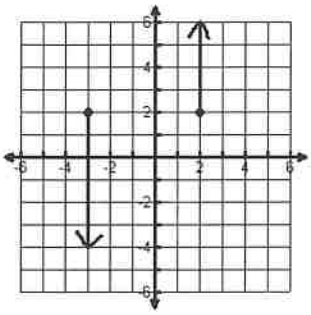


e) h(x) = f(2x)

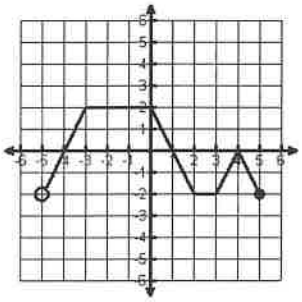


Domain and Range Worksheet #1 **Name:** _____

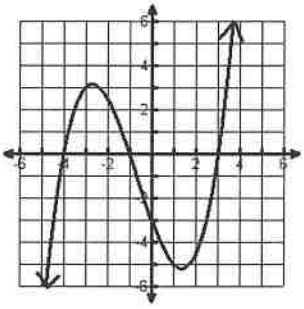
State the domain and range for each graph and then tell if the graph is a function (write yes or no).
If the graph is a function, state whether it is discrete, continuous or neither.



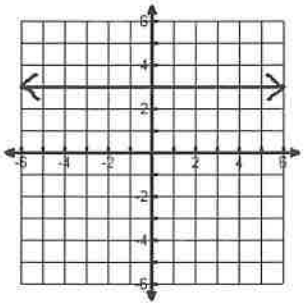
1) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



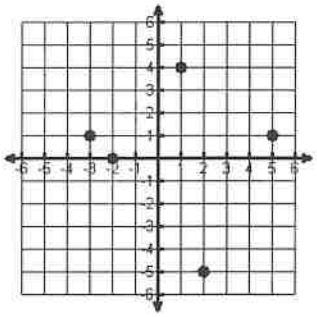
2) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



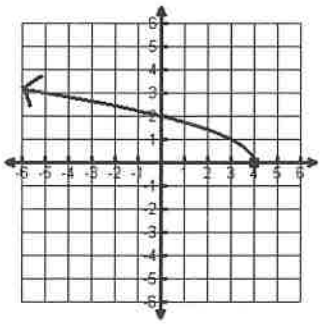
3) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



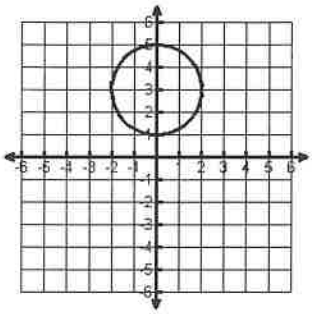
4) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



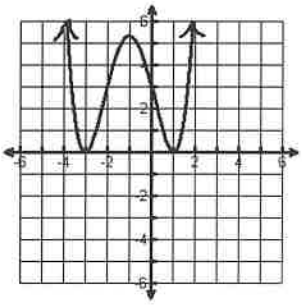
5) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



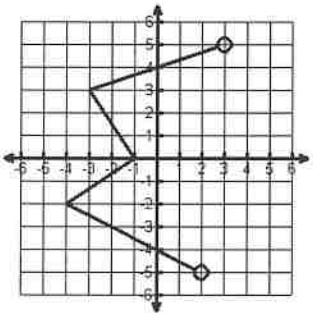
6) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



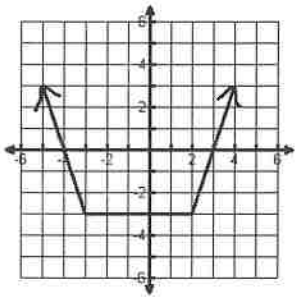
7) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



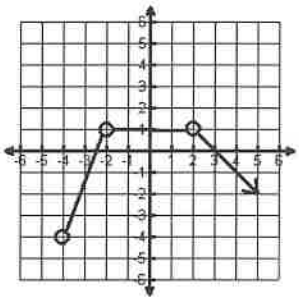
8) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



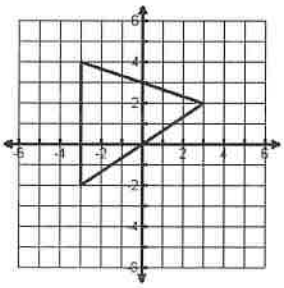
9) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



10) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



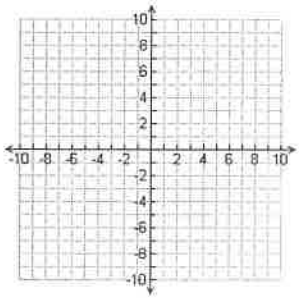
11) Discrete or Cont? _____
Domain_____
Range_____
Function?_____



12) Discrete or Cont? _____
Domain_____
Range_____
Function?_____

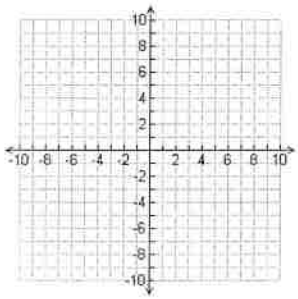
Draw a graph with the following domain and range. Identify whether the relation is a function and whether it is continuous or discrete (circle one).

12) Domain: $\{-2, 0, 4\}$
Range: $\{-3, -1, 2, 3, 4\}$



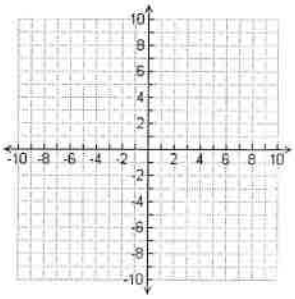
Function? _____
Continuous or Discrete?

13) Domain: $0 \leq x \leq 7$
Range: $-4 \leq y \leq 6$



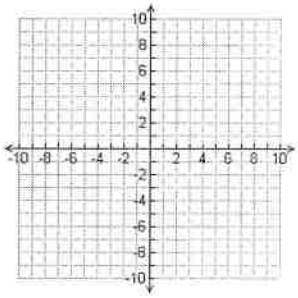
Function? _____
Continuous or Discrete?

14) Domain: $-8 \leq x \leq 3$
Range: $-1 \leq y \leq 5$



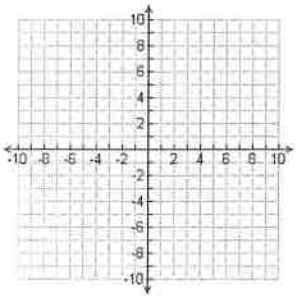
Function? _____
Continuous or Discrete?

15) Domain: all real numbers
Range: all real numbers



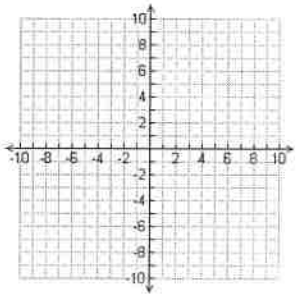
Function? _____
Continuous or Discrete?

16) Domain: $\{1\}$
Range: $\{-1, 3, 6\}$



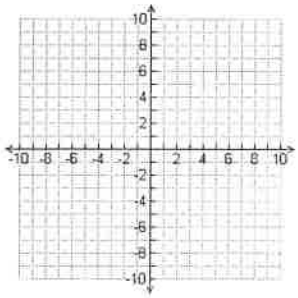
Function? _____
Continuous or Discrete?

17) Domain: $\{-9, -6, -5, 0, 3, 4\}$
Range: $\{-2\}$



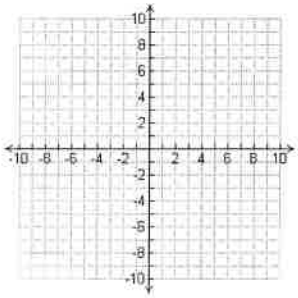
Function? _____
Continuous or Discrete?

18) Domain: $-5 \leq x \leq 7$
Range: $0 \leq y \leq 3$



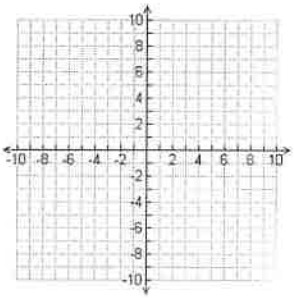
Function? _____
Continuous or Discrete?

19) Domain: all real numbers
Range: $0 \leq y \leq \infty$



Function? _____
Continuous or Discrete?

20) Domain: $-\infty \leq x \leq 4$
Range: all real numbers



Function? _____
Continuous or Discrete?

EXERCISES:

Write the following inequalities in interval notation and graph it.

1. $x \leq 3$
2. $-2 < x \leq 4$
3. $-9 \leq x \leq 0$
4. $x > -4$
5. $x < -3$
6. $x \geq 6$

Express each of the following intervals in set-builder notation.

7. $(2, 8)$
8. $[-5, 0)$
9. $(3, \infty)$
10. $(-\infty, -4]$

Be prepared to describe a real-world discrete or continuous activity.