hw-17-library-functions

Due: **12/13/2015 at 06:00am EST.**

Students will be able to:

- Identify Library Functions
- Identify Piecewise Function
- Determine Table of Value for Library Function

Functions and symbols that WeBWorK understands.
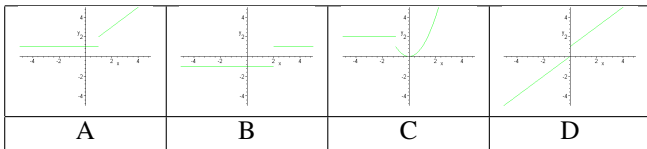
Links to some useful WeBWorK pages for students

1. (1 pt) Match the functons with their graphs. Enter the letter of the graph below which corresponds to the function. (**Click on image for a larger view**)

___1. $2x + 3$
___2. $|x| + x + 1$
___3. $-x^2$
___4. $x^2 - 4$

A	B	C	D
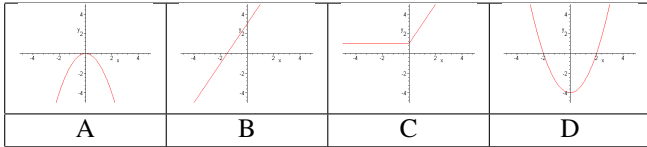
2. (1 pt) Match the functons with their graphs. Enter the letter of the graph below which corresponds to the function. (**Click on image for a larger view**)

___1. Piecewise function : $f(x) = 2$, if $x \leq -1$ and $f(x) = x^2$, if $x > -1$
___2. Piecewise function : $f(x) = -1$, if $x < 2$ and $f(x) = 1$, if $x \geq 2$
___3. Piecewise function : $f(x) = 1$, if $x \leq 1$ and $f(x) = x + 1$, if $x > 1$
___4. Piecewise function : $f(x) = x$, if $x \leq 0$ and $f(x) = x + 1$, if $x > 0$

A	B	C	D

3. (1 pt) Match the functions with their graphs. Enter the letter of the graph below which corresponds to the function.

___1. Piecewise function: $f(x) = 1$ if $x \leq 1$, and $f(x) = x + 1$ if $x > 1$
___2. Piecewise function: $f(x) = 2x + 3$ if $x < -1$, and $f(x) = 3 - x$ if $x \geq -1$
___3. Piecewise function: $f(x) = x$ if $x \leq 0$, and $f(x) = x + 1$ if $x > 0$
___4. Piecewise function: $f(x) = 2$ if $x \leq -1$, and $f(x) = x^2$ if $x > -1$

A.

B.

C.

D.
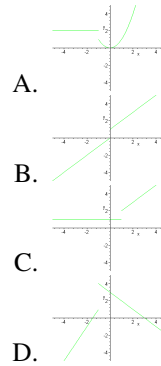
4. (1 pt) The simplest functions are the linear (or affine) functions — the functions whose graphs are a straight line. They are important because many functions (the so-called differentiable functions) "locally" look like straight lines. ("locally" means that if we zoom in and look at the function at very powerful magnification it will look like a straight line.)

Enter the letter of the graph of the function which corresponds to each statement.

___1. The graph of the line is increasing
___2. The graph of the line is decreasing
___3. The graph of the line is constant
___4. The graph of the line is not the graph of a function

A	B	C	D
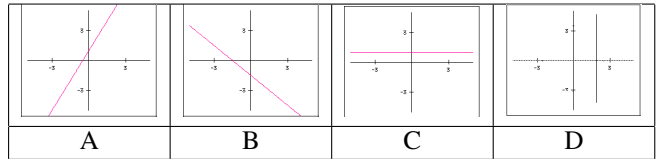
5. (1 pt) In this problem you will work on graphing function $f(x) = |x|$.

First you will find some points on the graph of $y = |x|$

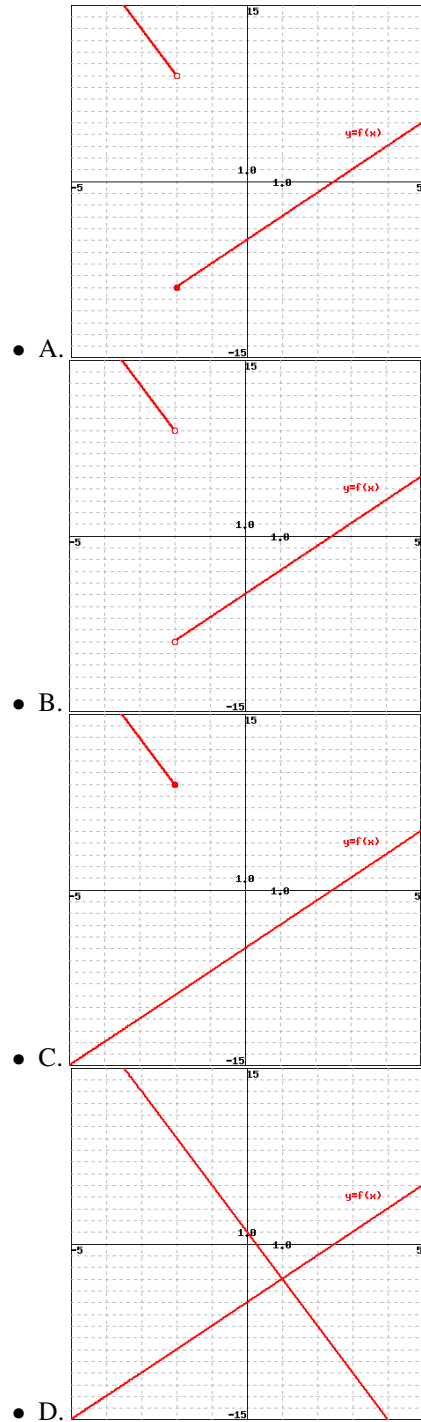| x	y
0	___
1	___
-1	___
2	___
-2	___
5	___
-5	___
9	___
-9	___

Next you will plot the points you found above, and draw a line through the points.

Now, select the correct graph from the list below:
The graph of $y = |x|$ matches...

- A.

- B.

- C.

- D.

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6. (1 pt) In this problem you will work on graphing function
$$f(x) = \begin{cases} -4x+1 & \text{if } x \leq -2 \\ 2x-5 & \text{if } x > -2 \end{cases}.$$

First you will find some points on the graph of $y = \begin{cases} -4x+1 & \text{if } x \leq -2 \\ 2x-5 & \text{if } x > -2 \end{cases}$

x	y
-3	___
-2	___
-1	___
0	___
1	___
2	___
3	___

Next you will plot the points you found above, and draw a line through the points.
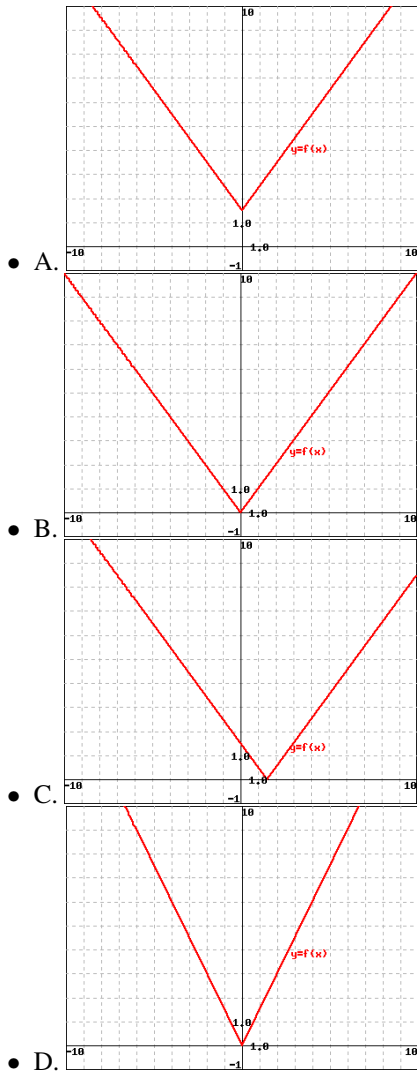
Now, select the correct graph from the list below:

The graph of $y = \begin{cases} -4x+1 & \text{if } x \leq -2 \\ 2x-5 & \text{if } x > -2 \end{cases}$
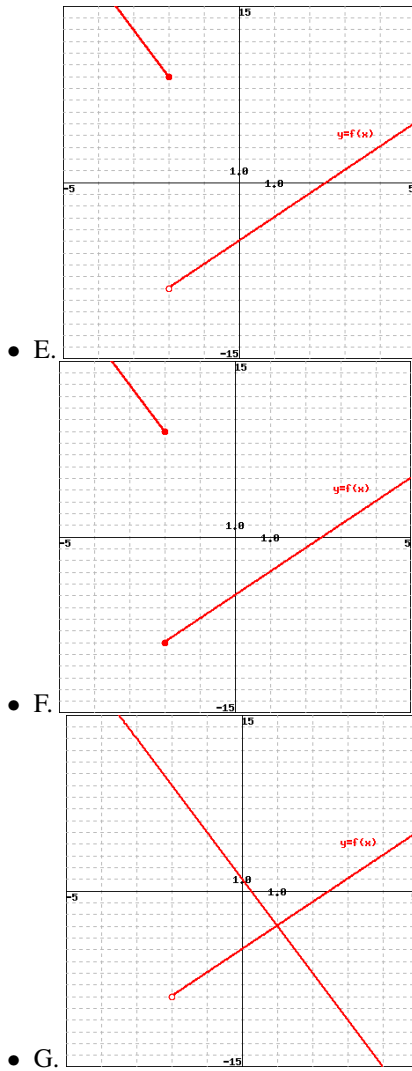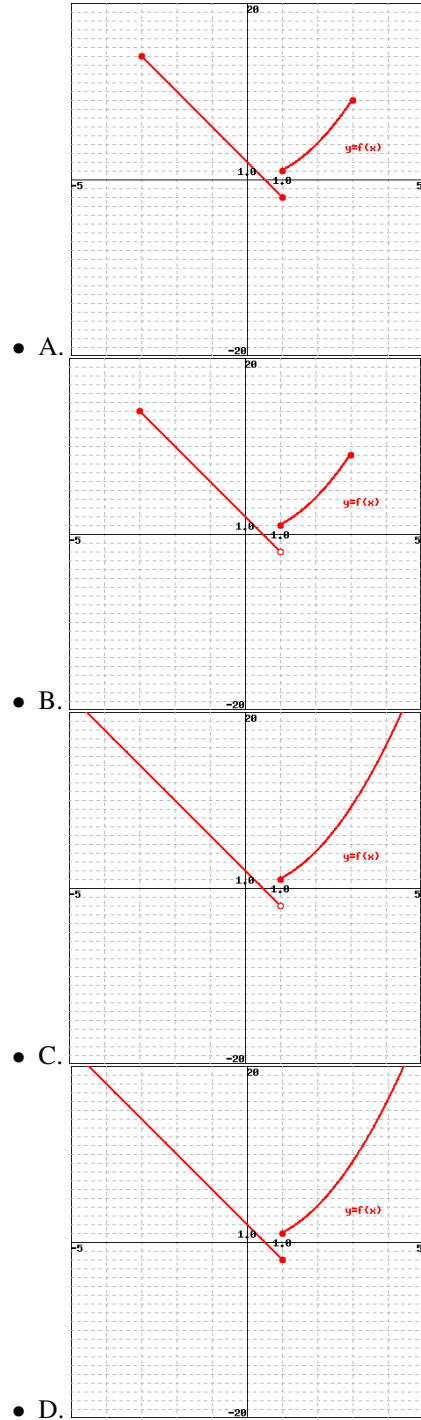
matches...

- A.

- B.

- C.

- D.

Now, select the correct graph from the list below:

The graph of $y = \begin{cases} -4x+2 & \text{if } -3 \leq x < 1 \\ x^2 & \text{if } 1 \leq x \leq 3 \end{cases}$
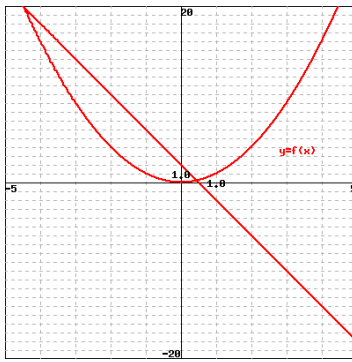
matches...

- E.

- F.

- G.

- A.

- B.

- C.

- D.

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7. (1 pt) In this problem you will work on graphing function
$f(x) = \begin{cases} -4x+2 & \text{if } -3 \leq x < 1 \\ x^2 & \text{if } 1 \leq x \leq 3 \end{cases}$.

First you will find some points on the graph of $y = \begin{cases} -4x+2 & \text{if } -3 \leq x < 1 \\ x^2 & \text{if } 1 \leq x \leq 3 \end{cases}$

x	y
-3	___
-2	___
-1	___
0	___
1	___
2	___
3	___

Next you will plot the points you found above, and draw a line through the points.

- E.