WeBWorK assignment number one is due : 10/15/2011 at 11:59pm MST.

The primary purpose of WeBWorK is to let you know that you are getting the correct answer or to alert you if you are making some kind of mistake. Usually you can attempt a problem as many times as you want before the due date. However, if you are having trouble figuring out your error, you should consult the book, or ask a fellow student, one of the TA's or your professor for help. Don't spend a lot of time guessing – it's not very efficient or effective.

Give 4 or 5 significant digits for (floating point) numerical answers. For most problems when entering numerical answers, you can if you wish enter elementary expressions such as $2 \wedge 3$ instead of 8, $sin(3 * pi/2)$instead of -1, $e \wedge (ln(2))$ instead of 2, $(2+tan(3)) * (4-sin(5)) \wedge 6-7/8$ instead of 27620.3413, etc.

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1. **(1 pt) Library/Rochester/setAlgebra02ExponentsRadicals-/srw1_2_2.pg**

Evaluate the expression -5^4.

_____

[NOTE: Your answer cannot be an algebraic expression.]

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2. **(1 pt) Library/Rochester/setAlgebra20QuadraticFun/lh3-2_29.pg**

Finf all real zeros of $f(x) = x^2 - 1x - 30$.

Zeros are $x =$ _____.

Note: If there is more than one answer enter them separated by commas.

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3. **(1 pt) Library/Rochester/setAlgebra29LogFunctions/srw4_3_17-20.pg**

Evaluate the following expressions.

(a) $\log_3 3^8 =$ _____

(b) $\log_2 16 =$ _____

(c) $\log_4 256 =$ _____

(d) $\log_3 3^{12} =$ _____

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4. **(1 pt) Library/FortLewis/Algebra/5-1-Linear-functions/MCH1-5-1-33-Linear-functions.pg**

Match each function with its graph A-F. The constants k and s are the same in each function.

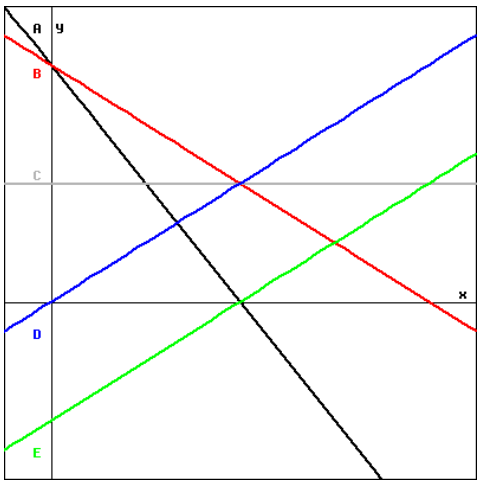
? $f(x) = s$

? $f(x) = 2s - 2kx$

? $f(x) = 2s - kx$

? $f(x) = kx$

? $f(x) = kx - s$



(Click on graph to enlarge)

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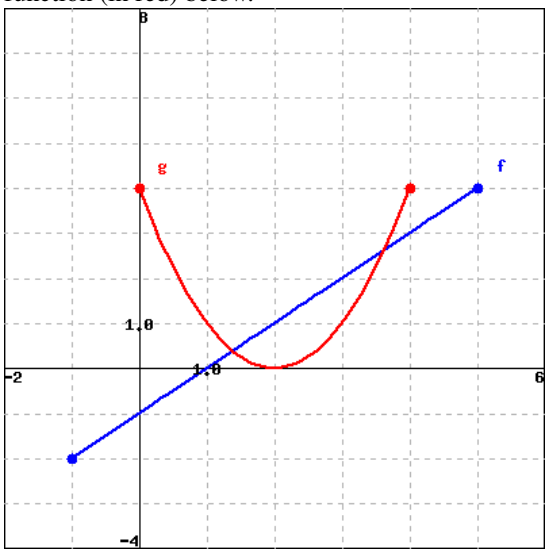
5. **(1 pt) Library/Rochester/setAlgebra17FunComposition-/ur_fn_2_1.pg**

Let f be the linear function (in blue) and let g be the parabolic function (in red) below.



Note: If the answer does not exist, enter 'DNE':

1. $(f \circ g)(2) =$ ____
2. $(g \circ f)(2) =$ ____
3. $(f \circ f)(2) =$ ____

4. $(g \circ g)(2) =$ ___
5. $(f+g)(4) =$ ___
6. $(f/g)(2) =$ ___

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6. **(1 pt) Library/Rochester/setAlgebra17FunComposition-/ur_fn_2_7.pg**

Let $f(x) = \dfrac{1}{x-2}$ and $g(x) = 5x+9$.
Then $(f \circ g)(2) =$ _____,
$(f \circ g)(x) =$ _____.

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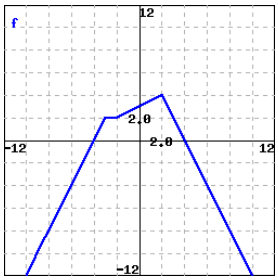
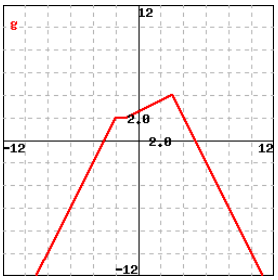
7. **(1 pt) nauLibrary/setFunctionTrans/FunctionTransHoriz.pg**





Find the formula for g in terms of f.
$g(x) =$ _____

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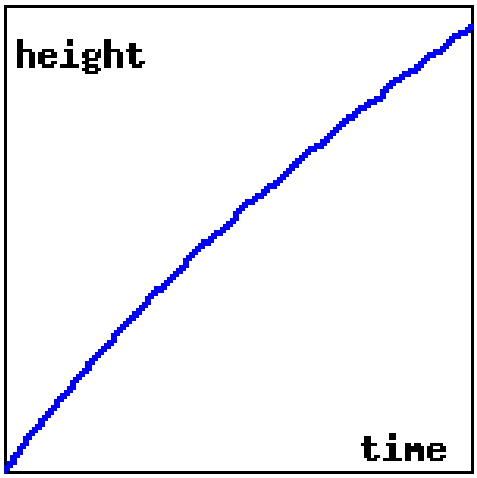
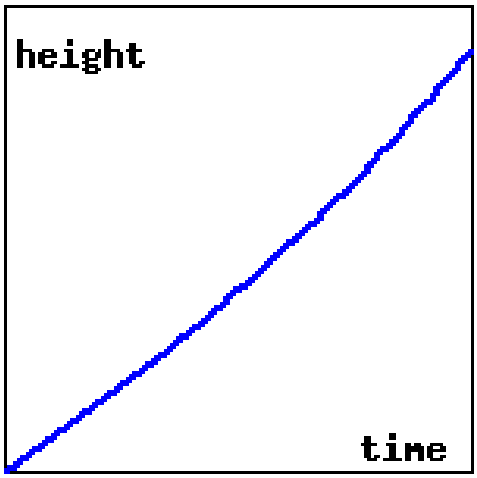
8. **(1 pt) nauLibrary/setCalcI/containers.pg**

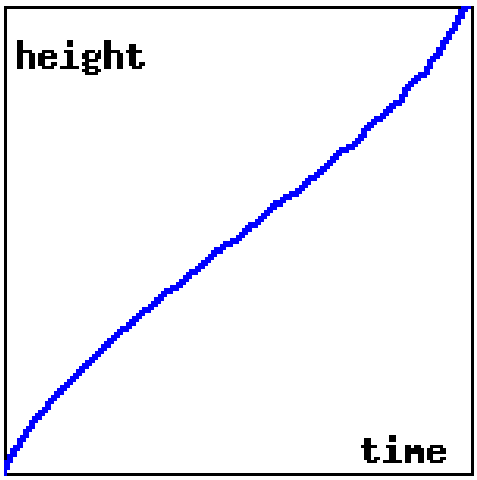
Cups are filled with coffee. Match the cup shapes with the graphs showing the height of the fluid level as a function of time.



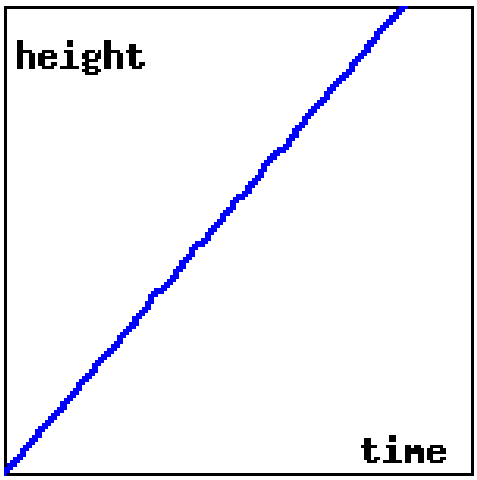
? 1.



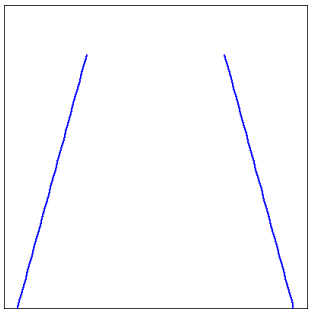
? 2.



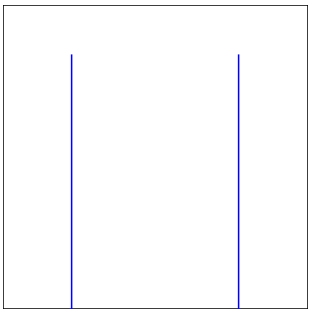
? 3.



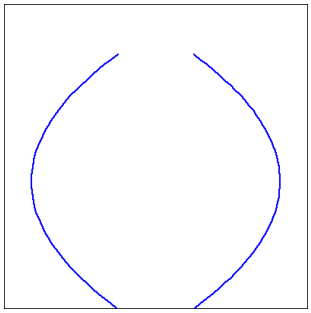
? 4.



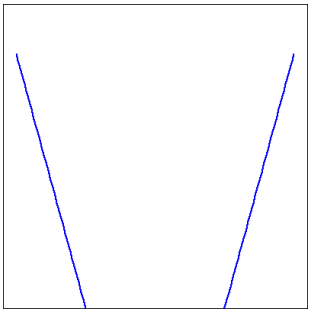
A



B



C



D

(Click on a graph to enlarge it)

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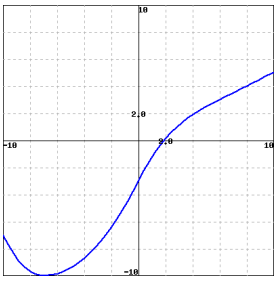
9. **(1 pt) nauLibrary/setCalcI/func_anal.pg**

Function Analysis

The graph of the function f is given below. Assume that f is as smooth as the graph allows.



Fill in the function analysis table.

x	$x <$	-7	$< x <$	0	$< x <$	6	$< x$
f	?	?	?	?	?	?	?
	?		?		?		?
f'	?	?	?	?	?	?	?
	?		?		?		?
f''	?	?	?	?	?	?	?

Recall that 'convex' means 'concave up' and 'concave' means 'concave down'. Also recall that an inflection point is a point where the convexity of the function changes.

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10. **(1 pt) pl//setLimitsRates1TangentVelocity/ns2_1_5b.pg**

Below is an "oracle" function. An oracle function is a function presented interactively. When you type in a t value, and press the –f–> button, the value $f(t)$ appears in the right hand window. There are three lines, so you can easily calculate three different values of the function at one time.

The function $f(t)$ represents the position (mesured in meters) of a particle at time t (measured in seconds).

The velocity of the particle at time 1.4 is approximately _____ meters per second. You need to give an answer accurate to 1 percent.

t	→	f(t)
Enter t	→	result: $f(t)$
Enter t	→	result: $f(t)$
Enter t	→	result: $f(t)$

Remember this technique for finding velocities. Later we will use the same method to find the derivative of a function.

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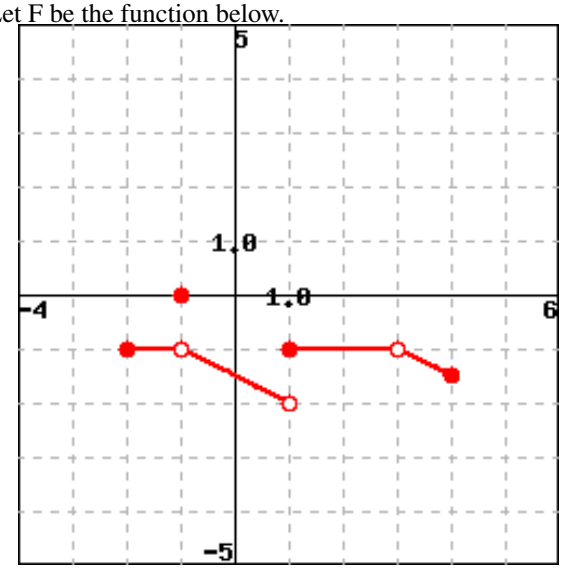
11. **(1 pt) pl/setLimitsRates1_5Graphs/ur_lr_1-5_1.pg**

Let F be the function below.



Evaluate each of the following expressions.

Note: Enter 'DNE' if the limit does not exist or is not defined.

a) $\lim_{x \to -1^-} F(x) =$ ___

b) $\lim_{x \to -1^+} F(x) =$ ___

c) $\lim_{x \to -1} F(x) =$ ___

d) $F(-1) =$ ___

e) $\lim_{x \to 1^-} F(x) =$ ___

f) $\lim_{x \to 1^+} F(x) =$ ___

g) $\lim_{x \to 1} F(x) =$ ___

h) $\lim_{x \to 3} F(x) =$ ___

i) $F(3) =$ ___

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12. **(1 pt) Library/NAU/setGraphTheory/MakeDegrees.pg**

Construct a simple graph with vertices U, V, W, X, Y whose degrees are 2, 1, 2, 2, 3

What is the edge set? _____

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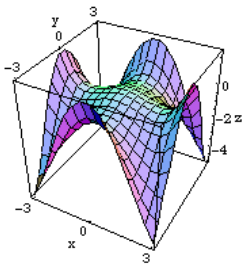
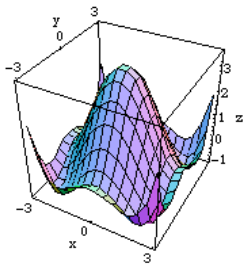
13. **(1 pt) Library/Union/setMVlevelsets/levels-3/levels-3.pg**

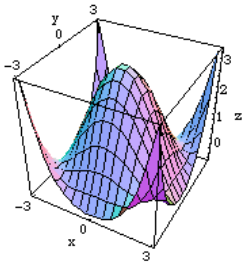
For each surface shown on the left, select the image on the right that represents the level sets for that surface. Drag a surface in order to rotate it. In the level sets, the red areas are the lowest levels while the purple are the highest.



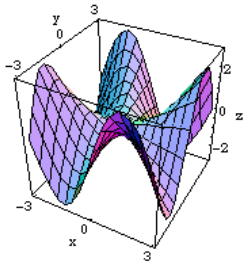
1. ___



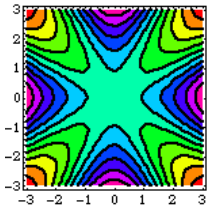
2. ___



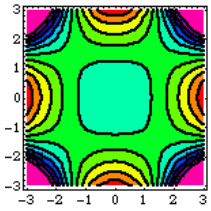
3. ___



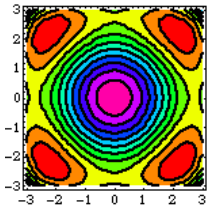
4. ___



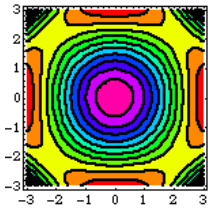
A



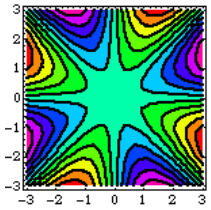
B



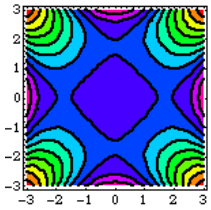
C



D



E



F