**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**August 25th, 2011**

**AP Calculus 1, Mrs. Sulkes**

**Composition as a Transformation**

Part 1: Match the function on the right with the description of the transformation on the left. If and changed to



1.  A. The x-intercepts on the graph of *f(x)* become vertical

asymptotes. As *f(x)* increases or decreases without

bound, the new graph now approaches 0. Around

the vertical asymptotes, the new graph now goes

towards infinity or negative infinity.

1.  B. The x-intercepts remain the same. If *f(x)* increases,

the new graph also continues to increase. Delete

the part of *f(x)* where *f(x)* < 0.

1.  C. The x-intercepts become vertical asymptotes. Where

*f(x)* = 1, this is now an x-intercept. Delete the part where

*f(x)* < 0. As the new function approaches the vertical

asymptote, the new graph goes towards negative infinity.

1.  D. Where *f(x)* < 0, reflect in the x-axis. Delete the part

of the graph of *f(x)* where *f(x)* < 0.

1.  E. Reflect the part of the graph of *f(x)* where x > 0 in the y-

axis. Delete the part of the graph where x < 0.

1.  F. As *f(x)* approaches infinity, the new function also

approaches infinity. As *f(x)* approaches negative infinity,

the new function values approach zero.

Part 2: The graph of the parent function is sketched below.



Determine which of the following graphs represents , , , , , and 

1.  F(x) = \_\_\_\_\_\_\_\_\_
2.  F(x) = \_\_\_\_\_\_\_\_\_\_\_\_
3.  F(x) = \_\_\_\_\_\_\_\_\_\_\_
4.  F(x) = \_\_\_\_\_\_\_\_\_\_\_\_\_
5.  F(x) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6.  F(x) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Practice:**

1. Given f(x) = x3,
2. Sketch the graph of f(|x|) and state the domain and range. Your graph must show any intercepts and any asymptotes.
3. Sketch the graph of and state the domain and range. Your graph must show any intercepts and any asymptotes.
4. Given f(x) = tan x
5. Sketch the graph of f(2x - 1) and state the domain and range. Your graph must show any intercepts and any asymptotes.
6. Sketch the graph of ln(f(x))and state the domain and range. Your graph must show any intercepts and any asymptotes.
7. Given f(x) = cos x, sketch the graph of and state the domain and range. Your graph must show any intercepts and any asymptotes.
8. Given f(x) = ln (x), sketch the graph of and state the domain and range. Your graph must show any intercepts and any asymptotes.