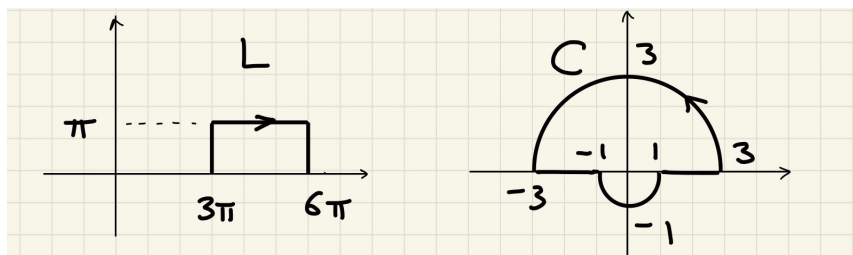


YOUR NAME:

**MAT 342, Quiz 3, 10/9**

Let  $L$  and  $C$  be the contours shown in the figure below. The contour  $L$  consists of 3 segments parallel to the coordinate axes as shown, traversed from  $3\pi$  to  $6\pi$ . The contour  $C$  is a closed curve traversed counterclockwise; it consists of two semicircles (of radius 1 and radius 3, centered at 0) and two segments of the  $x$ -axis, as shown.



Compute the following integrals. Justify your answers. You can use any method (try to use methods that would give you quicker solutions).

1.  $\int_L e^{iz} dz$

2.  $\int_L \frac{1}{z} dz$

3.  $\int_C e^{iz} dz$

CONTINUED ON BACK! PLEASE TURN OVER!!

4.  $\int_C \frac{1}{z} dz$

5.  $\int_C \frac{\cos^2 z}{z^2 + 25} dz$

6.  $\int_C \frac{dz}{z^2 + 4}$