

① Find the area of the hexagon ABCDEF } HW  
where  $A=(0,0)$ ,  $B=(3,-1)$ ,  $C=(5,2)$ ,  
 $D=(1,1)$ ,  $E=(3,6)$ ,  $F=(-2,1)$ . } 49

② Find the center of mass of (the interior of) the hexagon from ①.

③ Find  $\iint_E xy \, dx \, dy$  where  $E$  is the region enclosed by curve  $I$  but outside of curves  $J$  and  $K$  parametrized below and plotted on the next page.  $t$  goes from  $0$  to  $2\pi$  for each of  $I, J, K$ :

$$I: \vec{r}(t) = \langle 3 + (6 + \sin(7t)) \cos(t), (4 + 2 \sin(7t)) \sin(t) \rangle$$

$$J: \vec{r}(t) = \langle 1 + 2 \cos(t), -\sin(t) \rangle$$

$$K: \vec{r}(t) = \langle 5 + \cos(t), 1 - 2 \sin(t) \rangle$$

