

# Hints for the Tutorial 7

MATHEMATICS-2(MA10002)

SPRING-2020

1. Differentiate  $I$  wrt  $a$ .  $I = \frac{\pi}{a} \log \frac{a+b}{b}$
2. Differentiate  $I$  wrt  $a$ .
3. Use substitution  $x = at$  and differentiate  $I$  wrt  $a$ . For the second part use the continuity of  $F(x)$  and  $F'(x)$ .
4. Differentiate  $I$  wrt  $a$  and rearrange.
5. Differentiate  $I$  wrt  $a$  and find the value of integrating constants.
6. (a) Differentiate  $I$  wrt  $t$ .  
(b) Differentiate two times  $I$  wrt  $a$ .  
(c) Differentiate  $I$  wrt  $a$ .
7. Use the half angle formulae and find the first integral. For the second integral Differentiate first integral  $I$  wrt  $a$ .
8. (a) Use the formulae  $V = \iiint z dx dy$ .  
(b) Use the formulae of centre of gravity of two-dimensional object.  
(c) Use the formulae  $A = \iint dx dy$ .
9. (a) Draw the domain and draw horizontal strips.  
(b) Draw the domain and draw horizontal strips. Divide the domain in two parts.  
(c) Draw the domain and draw horizontal strips. Divide the domain in two parts.  
(d) Draw the domain and draw horizontal strips.