2=0.01 386

X: The distance (in m) That an en animal moves from its · birth site to the first territorial variancy it encounters.  $P(X \leq 100) = F(100, 0.01386) \rightarrow F(x; \mu) \qquad P(X \leq x) = F(x)$ 

= 1-e-100x0.01386

PC 100 < x < 200) = F(200; 0.01386) - F(100; 0.01386) = -100 (0.01386) - e -200(0.01386)

P(x>p+20) = P(x>++2)

PC(x/µ1 · <20) = P(µ-20/< x < µ+20) 0= 12.15 = P(-72.15 < X < 216.45) = (-72.15 (0.01386) - 216.45 (0.01386) = (-72.15 (0.01386) - 216.45 (0.01386)

P(1x-420) = P(xx 4+20)

 $= P(\times 4216.45) = 1 - P(\times 4216.45)$  = 1 - (1 - 00) = -216.45 (0.01386)  $= -216.45 \times 0.01386 = 0.0498$ 

F(µ)=05 (Holds for any distribution under (TV)

 $F(\tilde{\mu}, \lambda) = 1 - e^{-\lambda \tilde{\mu}} = 0.5$ 

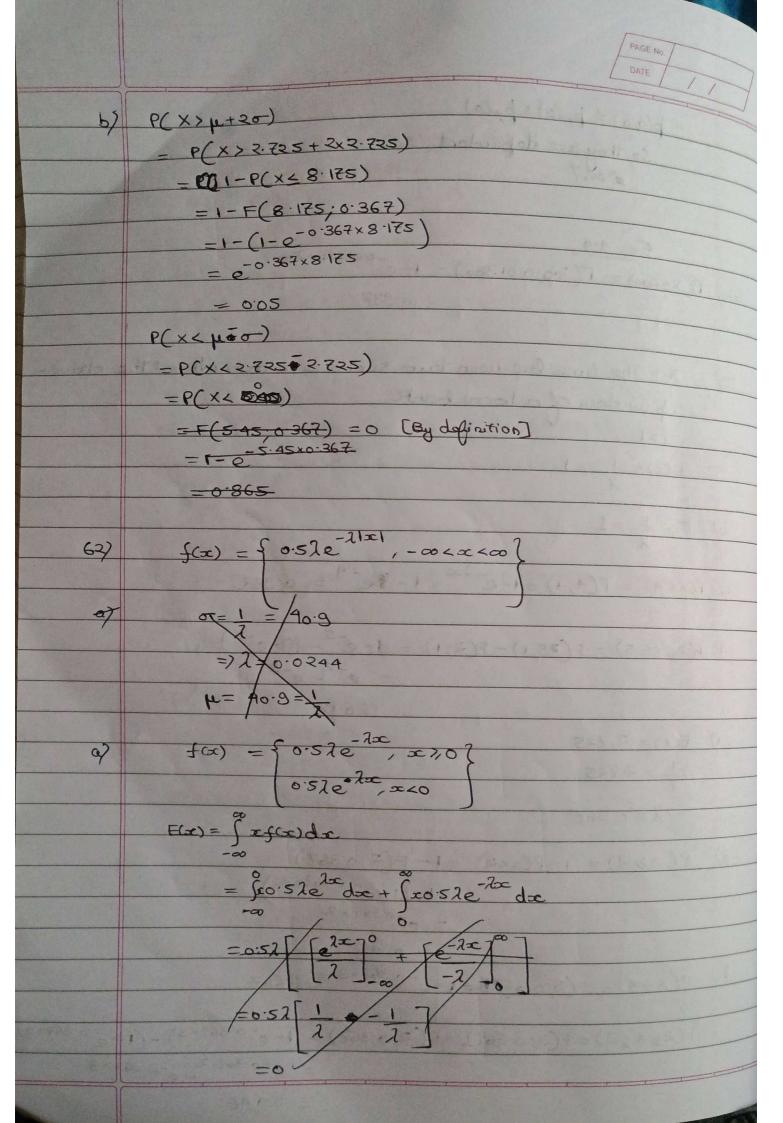
=> -0.01386 p = 100.5

=  $\mu = 0 - \ln(0.5)$  0.01386

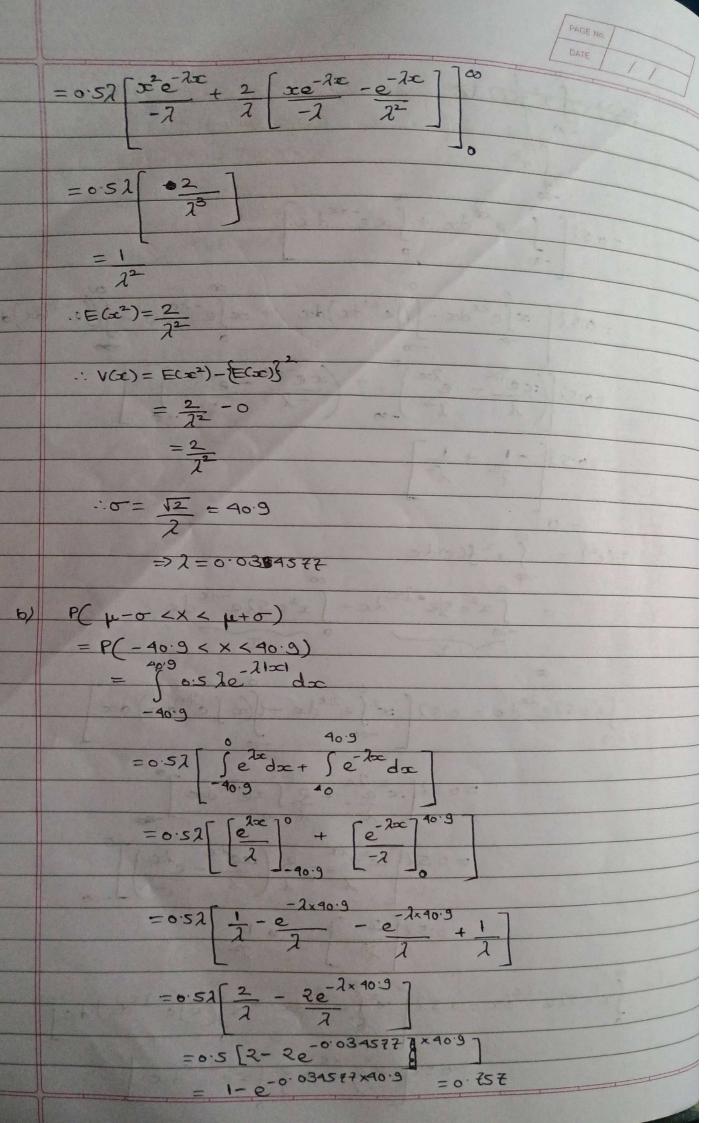
=) [= 50.01

 $E_{\overline{x}:-4.4} = -0.01386 \times 200$   $E_{\overline{x}:-4.4} = -0.01386 \times 200$  = 0.937

6) 
$$E(x) = 2.725$$
  
 $\frac{1}{2} = 2.725$   
 $27 = 0.367$   
 $P(x > 2) = 1 - P(x < 2) = 1 - F(2; 0.367)$   
 $= 1 - (1 - e^{-0.367 \times 2})$   
 $= e^{-0.367 \times 2}$   
 $= 0.48$   
1  $P(x \le 3) = F(3; 0.367) = 1 - e^{-0.367 \times 3} = 0.667$   
 $P(2 \le x \le 3) = F(3; 0.367) - F(2; 0.367) = (1 - e^{-0.367 \times 2})$   
 $= e^{-0.367 \times 2}$   
 $= e^{-0.367 \times 2}$   
 $= e^{-0.367 \times 2}$   
 $= e^{-0.367 \times 2}$   
 $= e^{-0.367 \times 2}$ 



$$\frac{1}{2} = \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \frac{1}{$$



```
X: The ro. of minutes in describing
  63/ b) b1(x) = lox
            h2(x)= {99 h , x = 20
                      99+ (x-30)×10, x>20
             E(h_1(x)) = 10 E(h_1(x)) = 10 \mu = \frac{10}{\lambda}
             E(he(x)) = 99+10 (x-20)×10 le-12 doc
                         =99+ 102 (x-20) e dx
                         = 1099+ 102 | xe-2xdx - 20 | e dx | 20
                          =99+102\left[\times \int e^{-2x}dx - \int \left(\int e^{-2x}dx\right)dx + 20e^{-2x}\right]
                         =99+102\left[\times e^{-2x} - e^{-2x} + 20e^{-2x}\right]^{\infty}
                          99+102 20e 1 + e -2x20 - 20 d 2x20]
                          = 99+ 10e - 2×20
2
                = (h_2(x)) = 99 + 10 \mu e^{-20} / \mu
                 E(h_1(x)) = 10x10 = 1004000 = 15
E(h_2(x)) = 990 + 10x100 = 20/10 = 20/10 = 112.53 \neq = 1.13$
        whon 4=10,
                  E(h_2(x)) = 10x15 = 150 \neq = 4.1.5 = 1.38

E(h_2(x)) = 99 + 10x15 = 138.54 \neq = 1.38
          to the first plan is better if the experted call bright
                 is lower and the second plan is botter if the experted
2
                 call length is somewhat highex.
```

