

Q14. $(1 - n + n^2)^4$
 $= (n^2 - n + 1)^4$
 $\rightarrow$ let $n^2 - n$ be a

$$\Rightarrow (a + 1)^4 = {}^4C_0 a^4 + {}^4C_1 a^3 (1)^1 + {}^4C_2 a^2 + {}^4C_3 a + {}^4C_4 \cdot 1^4$$

$$= a^4 + 4a^3 + 6a^2 + 4a + 1$$

Now substitute $a = n^2 - n$

$$\Rightarrow (n^2 - n + 1)^4 = (n^2 - n)^4 + 4(n^2 - n)^3 + 6(n^2 - n)^2 + 4(n^2 - n) + 1$$

Q15. $e^{-n} = 3 \log n$
 $e^{-n} - 3 \log n = 0$

$$a = 1$$

$$b = 2$$

iteration $n = 4$

n

1

2

y
 0.367879441

-0.767754703

$$\rightarrow n_1 = \frac{1+2}{2} = 1.5$$

$$y_1 = -0.305143617$$

$$\rightarrow n_2 = \frac{1+1.5}{2} = 1.25$$

$$y_2 = -0.00422524$$

$$\rightarrow n_3 = \frac{1+1.25}{2} = 1.125$$

$$y_3 = 0.1711943$$

$$\rightarrow n_4 = \frac{1.125 + 1.25}{2} = 1.1875$$

$$y_4 = 0.08108181382$$