3. Question – $x = 0.577$

Putting $x = 0.577$ we get –

$$\frac{6x}{(1-3x^2)^2} = \frac{6(0.577)}{[1-3(0.577)^2]^2} = \frac{3.462}{(0.001213)^2} = 2352910.793$$

i) We have to calculate to first error percentage upto 3-significant figure –

So, Answer → 3 significant figure = 2350000

Now, Percentage true error

$$= \frac{(2352910.793 - 2350000)}{(2352910.793)} \times 100$$

$$= 0.123\%$$

ii) We have to calculate to error percentage upto 4-significant figure –

So, Answer → 4 significant figure = 2352000

Now,

Percentage true error

$$= \frac{(2352910.793 - 2352000)}{2352910.793} \times 100$$

$$= 0.038\%$$