

$$\begin{aligned} \therefore C(y) &= \int (0.4 + 0.3y^{-\frac{1}{2}}) dy \\ &= 0.4y + \frac{0.3y^{\frac{1}{2}}}{\frac{1}{2}} + C \\ &= 0.4y + 0.6y^{\frac{1}{2}} + C \end{aligned}$$

$$= 0.4y + 0.6\sqrt{y} + C$$

to find C : $C(0) = 5$

$$\boxed{5 = C}$$

$$\therefore C(y) = .4y + 0.6\sqrt{y} + 5$$

20] If consumption is 5.8\$ billion when disposable income is \$0 and if the marginal propensity to consume is $\frac{dC}{dy} = \frac{1}{\sqrt{2y+9}} + 0.8$

find the national consumption function.

$$\rightarrow C(y) = \int \left(\frac{1}{\sqrt{2y+9}} + 0.8 \right) dy$$

$$= \int \left((2y+9)^{-\frac{1}{2}} + 0.8 \right) dy$$

$$= \frac{1}{2} \int 2(2y+9)^{-\frac{1}{2}} + 0.8 dy$$

$$= \frac{1}{2} (2y+9)^{\frac{1}{2}} + 0.8y + C$$