

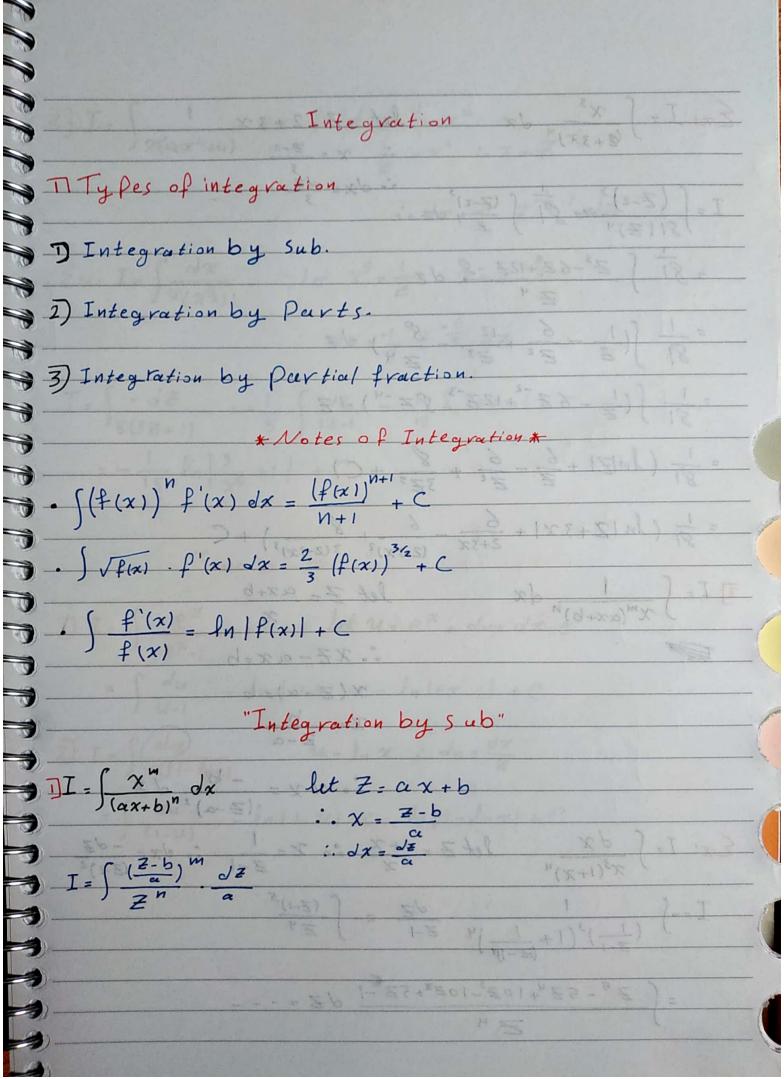
إعدادي 2020

## التكامل بالتعويض التكامل بالتعويض م. أدهم أسامة









Scanned with CamScanner

$$\sum_{x} I = \int \frac{x^{3}}{(z+3x)^{4}} dx \qquad \text{let } Z = 2+3x$$

$$\vdots \qquad x_{3} = 2-z$$

$$\vdots \qquad dx_{2} = \frac{3}{2}$$

$$= \int \frac{(z-z)^{3}}{SI(z)^{4}} dz = \int \frac{(z-z)^{3}}{z^{4}} dz$$

$$= \int \frac{1}{SI} \int \frac{z^{3}-6z^{2}+12z-S}{z^{2}+12z-S} dz$$

$$= \frac{1}{SI} \int \left(\frac{1}{z}-6z^{2}+\frac{12}{z^{3}}-\frac{S}{z^{4}}\right) dz$$

$$= \frac{1}{SI} \left(\frac{1}{z}-6z^{2}+\frac{1}{z^{3}}-\frac{S}{z^{4}}\right) dz$$

$$= \frac{1}{SI} \left(\frac{1}{z}-\frac{1}{z^{4}}\right) dx$$

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