

سورہ سرتھو:

Handwritten signature and date: 19/8/2020

مکرمہ کورس کی دلچسپی اور سہولتوں کے بارے میں

گورنمنٹ سرتھو 9/2014 (مکرمہ کورس کی دلچسپی اور سہولتوں کے بارے میں)

... اور اس کے بارے میں سرتھو

سورہ سرتھو: ...

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19/08/2020 گورنمنٹ:

|  |         |
|--|---------|
| مکرمہ کورس کی دلچسپی اور سہولتوں کے بارے میں |         |
| 4/39   | Shumain |
| 14:24  | 19.8.20 |
| گورنمنٹ سرتھو                                |         |
| 19/8/2020                                    | گورنمنٹ |



بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



تعمیر و ترمیم کے لیے (معمولاً) 9/2014 (معمولاً) کے تحت

... کے تحت

تعمیر و ترمیم کے لیے (معمولاً) 9/2014 (معمولاً) کے تحت

1. ... کے تحت 510 کے تحت

معمولاً

معمولاً کے تحت 510 (ر) کے تحت

(1) ... کے تحت

(2) ... کے تحت



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(1)  $\frac{d}{dt} \int_{\partial V} \mathbf{v} \cdot d\mathbf{A} = \int_V \nabla \cdot \mathbf{v} dV$  (1)

where  $\mathbf{v}$  is the velocity vector,  $d\mathbf{A}$  is the area element,  $V$  is the volume, and  $\nabla \cdot \mathbf{v}$  is the divergence of the velocity vector.

(2)  $\frac{d}{dt} \int_V \rho dV = \int_V \frac{d\rho}{dt} dV$  (2)

where  $\rho$  is the density,  $dV$  is the volume element, and  $\frac{d\rho}{dt}$  is the material derivative of the density.

i.  $\frac{d}{dt} \int_V \rho \mathbf{v} dV = \int_V \rho \frac{d\mathbf{v}}{dt} dV$

where  $\mathbf{v}$  is the velocity vector,  $dV$  is the volume element, and  $\frac{d\mathbf{v}}{dt}$  is the material derivative of the velocity vector.

ii.  $\frac{d}{dt} \int_V \rho \mathbf{v} \otimes \mathbf{v} dV = \int_V \rho \frac{d(\mathbf{v} \otimes \mathbf{v})}{dt} dV$

where  $\mathbf{v} \otimes \mathbf{v}$  is the dyadic product of the velocity vector with itself, and  $\frac{d(\mathbf{v} \otimes \mathbf{v})}{dt}$  is the material derivative of the dyadic product.

iii.  $\frac{d}{dt} \int_V \rho \mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v} dV = \int_V \rho \frac{d(\mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v})}{dt} dV$

where  $\mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v}$  is the triple dyadic product of the velocity vector with itself, and  $\frac{d(\mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v})}{dt}$  is the material derivative of the triple dyadic product.

where  $\frac{d}{dt}$  is the material derivative operator.

(a)  $\frac{d}{dt} \int_V \rho \mathbf{v} dV = \int_V \rho \frac{d\mathbf{v}}{dt} dV$  (a)

where  $\mathbf{v}$  is the velocity vector,  $dV$  is the volume element, and  $\frac{d\mathbf{v}}{dt}$  is the material derivative of the velocity vector.

(b)  $\frac{d}{dt} \int_V \rho \mathbf{v} \otimes \mathbf{v} dV = \int_V \rho \frac{d(\mathbf{v} \otimes \mathbf{v})}{dt} dV$  (b)

where  $\mathbf{v} \otimes \mathbf{v}$  is the dyadic product of the velocity vector with itself, and  $\frac{d(\mathbf{v} \otimes \mathbf{v})}{dt}$  is the material derivative of the dyadic product.

where  $\frac{d}{dt}$  is the material derivative operator.

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where  $\frac{d}{dt}$  is the material derivative operator.

(c)  $\frac{d}{dt} \int_V \rho \mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v} dV = \int_V \rho \frac{d(\mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v})}{dt} dV$  (c)

where  $\mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v}$  is the triple dyadic product of the velocity vector with itself, and  $\frac{d(\mathbf{v} \otimes \mathbf{v} \otimes \mathbf{v})}{dt}$  is the material derivative of the triple dyadic product.



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517

517 (1) ...

(1) ...

(2) ...

(3) ...

3. ... 515 ... 518 ...



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(8)  $\frac{1}{x^2} = x^{-2}$   $\frac{d}{dx} x^{-2} = -2x^{-3} = -\frac{2}{x^3}$   
  $\frac{d}{dx} \frac{1}{x^2} = -\frac{2}{x^3}$

(9)  $\frac{d}{dx} x^{\frac{1}{2}} = \frac{1}{2} x^{-\frac{1}{2}} = \frac{1}{2\sqrt{x}}$

(10)  $\frac{d}{dx} x^{\frac{3}{4}} = \frac{3}{4} x^{-\frac{1}{4}} = \frac{3}{4\sqrt[4]{x}}$

(11)  $\frac{d}{dx} x^{-\frac{1}{3}} = -\frac{1}{3} x^{-\frac{4}{3}} = -\frac{1}{3\sqrt[3]{x^4}}$

(12)  $\frac{d}{dx} x^{\frac{2}{3}} = \frac{2}{3} x^{-\frac{1}{3}} = \frac{2}{3\sqrt[3]{x}}$

(13)  $\frac{d}{dx} x^{\frac{5}{6}} = \frac{5}{6} x^{-\frac{1}{6}} = \frac{5}{6\sqrt[6]{x}}$

(14)  $\frac{d}{dx} x^{-\frac{2}{5}} = -\frac{2}{5} x^{-\frac{7}{5}} = -\frac{2}{5\sqrt[5]{x^7}}$

(15)  $\frac{d}{dx} x^{\frac{4}{5}} = \frac{4}{5} x^{-\frac{1}{5}} = \frac{4}{5\sqrt[5]{x}}$

(16)  $\frac{d}{dx} x^{\frac{1}{4}} = \frac{1}{4} x^{-\frac{3}{4}} = \frac{1}{4\sqrt[4]{x^3}}$   
  $\frac{d}{dx} \sqrt[4]{x} = \frac{1}{4\sqrt[4]{x^3}}$

(17)  $\frac{d}{dx} x^{-\frac{1}{5}} = -\frac{1}{5} x^{-\frac{6}{5}} = -\frac{1}{5\sqrt[5]{x^6}}$   
  $\frac{d}{dx} \frac{1}{\sqrt[5]{x}} = -\frac{1}{5\sqrt[5]{x^6}}$

(18)  $\frac{d}{dx} x^{\frac{3}{4}} = \frac{3}{4} x^{-\frac{1}{4}} = \frac{3}{4\sqrt[4]{x}}$

(19)  $\frac{d}{dx} x^{\frac{2}{3}} = \frac{2}{3} x^{-\frac{1}{3}} = \frac{2}{3\sqrt[3]{x}}$

(20)  $\frac{d}{dx} x^{\frac{1}{2}} = \frac{1}{2} x^{-\frac{1}{2}} = \frac{1}{2\sqrt{x}}$



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(17)  $\int_0^1 x^2 dx$  نىڭ قىممىتىنى تېپىڭ.  $\int_0^1 x^2 dx = \frac{1}{3}$

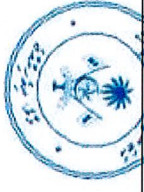
(18)  $\sin x$  نىڭ  $\frac{\pi}{2}$  دىكى قىممىتىنى تېپىڭ.  $\sin \frac{\pi}{2} = 1$

(19)  $\cos x$  نىڭ  $\frac{\pi}{2}$  دىكى قىممىتىنى تېپىڭ.  $\cos \frac{\pi}{2} = 0$

(20)  $\int_0^1 x dx$  نىڭ قىممىتىنى تېپىڭ.  $\int_0^1 x dx = \frac{1}{2}$

(بى) "تەبىئىي لۇگارىتم" دىكى  $\ln e$  نىڭ قىممىتىنى تېپىڭ.  $\ln e = 1$

$\int_0^1 x^2 dx = \frac{1}{3}$   
 $\int_0^1 x dx = \frac{1}{2}$   
 $\int_0^1 1 dx = 1$   
 $\int_0^1 x^3 dx = \frac{1}{4}$   
 $\int_0^1 x^4 dx = \frac{1}{5}$   
 $\int_0^1 x^6 dx = \frac{1}{7}$   
 $\int_0^1 x^8 dx = \frac{1}{9}$   
 $\int_0^1 x^{10} dx = \frac{1}{11}$   
 $\int_0^1 x^{12} dx = \frac{1}{13}$   
 $\int_0^1 x^{14} dx = \frac{1}{15}$   
 $\int_0^1 x^{16} dx = \frac{1}{17}$   
 $\int_0^1 x^{18} dx = \frac{1}{19}$   
 $\int_0^1 x^{20} dx = \frac{1}{21}$   
 $\int_0^1 x^{22} dx = \frac{1}{23}$   
 $\int_0^1 x^{24} dx = \frac{1}{25}$   
 $\int_0^1 x^{26} dx = \frac{1}{27}$   
 $\int_0^1 x^{28} dx = \frac{1}{29}$   
 $\int_0^1 x^{30} dx = \frac{1}{31}$



*Mansur*







