



MTH401 QUIZ(2)

Lecture: not mentioned

RIZ MUGHAL **SQA ENGINEER:**

I'm providing 100% correct quiz solution.

You can visit my YouTube channel for more quiz solution, also final year project including project assignments, and viva.

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<https://www.youtube.com/channel/UCINsFwDiB62SValCcPDZbRQ/playlists>

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<https://www.facebook.com/groups/923887914750307>

Question # 1 of 10 (Start time: 09:51:54 AM, 14 June 2021)

Total M

The auxiliary equation of the differential equation, $y''' + 2y'' - 3y = 0$, is _____.

Select the correct option

[Reload Math Equa](#)

$$m^3 - 3 = 0$$



$$m^3 + 2m^2 = 0$$



$$(m^3 + 2m^2 - 3) e^{mx} = 0$$



$$m^3 + 2m^2 - 3 = 0$$

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Question # 2 of 10 (Start time: 09:52:17 AM, 14 June 2021)

Total Marks: 1

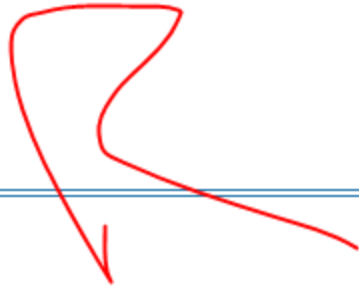
A function satisfying the differential equation on the interval I whose graph passes through (x_0, y_0) such that the slope of the curve at the point is the number y'_0 is called solution of the _____ value problem.

Select the correct option

[Reload Math Equations](#)

| | |
|----------------------------------|----------|
| <input checked="" type="radio"/> | initial |
| <input type="radio"/> | boundary |

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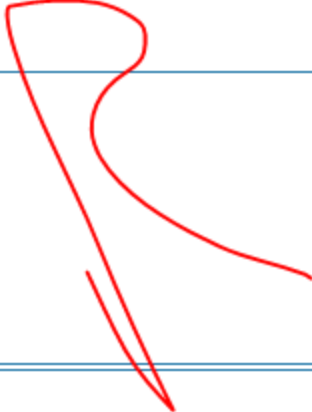
Question # 3 of 10 (Start time: 09:52:36 AM, 14 June 2021)

The gravitational force exerted by the earth on a body of mass m is called ----- of the body.

Select the correct option

| | |
|----------------------------------|--------|
| <input type="radio"/> | Force |
| <input checked="" type="radio"/> | weight |

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Question # 4 of 10 (Start time: 09:52:53 AM, 14 June 2021)

Total Marks: 1

For a second order linear ODE, if y_1 and y_2 are its solutions, and further $W(y_1, y_2) = -2$, $W_2 = \frac{e^x}{x}$,
then $u'_2 =$ _____.

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|---------------------|
| <input type="radio"/> | $\frac{e^x}{x}$ |
| <input checked="" type="radio"/> | $-\frac{e^x}{2x}$ |
| <input type="radio"/> | $2x e^x$ |
| <input type="radio"/> | $\frac{e^{-x}}{2x}$ |
- Riz Mughal*
- 

Question # 5 of 10 (Start time: 09:53:10 AM, 14 June 2021)


What is annihilator operator of the function

$$g(x) = x^4 + 5$$

?

Select the correct option

Relo

- | | |
|----------------------------------|-------------|
| <input type="radio"/> | $(D + 5)^4$ |
| <input type="radio"/> | $(D-4)$ |
| <input type="radio"/> | $(D+4)$ |
| <input checked="" type="radio"/> | D^5 |
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- 

Question # 6 of 10 (Start time: 09:53:25 AM, 14 June 2021)

Total Marks: 1

The combination of the Newton's second law and the Hook's law could lead to a differential equation governing to the motion of a mass attached to spring i.e. _____ motion.

Select the correct option

- | | |
|----------------------------------|-----------------|
| <input checked="" type="radio"/> | simple harmonic |
| <input type="radio"/> | linear |
| <input type="radio"/> | translational |
| <input type="radio"/> | rotational |

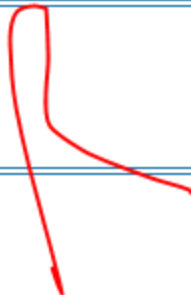
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Question # 7 of 10 (Start time: 09:53:42 AM, 14 June 2021)

If 3,3 are real roots of a differential equation, then the general solution is_____.

Select the correct option

[Reloa](#)

- | | |
|----------------------------------|-----------------------------|
| <input checked="" type="radio"/> | $y = (c_1 + c_2x)e^{3x}$ |
| <input type="radio"/> | $y = c_1e^{3x} - c_2e^{3x}$ |
| <input type="radio"/> | $y = c_1e^{3x} + c_2e^{3x}$ |
| <input type="radio"/> | $y = c_1e^{3x}$ |
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Question # 8 of 10 (Start time: 09:53:58 AM, 14 June 2021)

Total Marks: 1

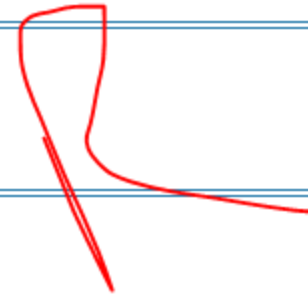
Consider the non - homogeneous linear differential equation, $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y' + a_0 y = g(x)$.
If the input function, $g(x) = \cos 4x$, then the assumed particular solution y_p could be _____.

Select the correct option

[Reload Math Equations](#)

| | |
|----------------------------------|------------------------------|
| <input checked="" type="radio"/> | $A \cos 4x + B \sin 4x$ |
| <input type="radio"/> | $(A + B)(\cos 4x + \sin 4x)$ |
| <input type="radio"/> | Ae^{4x} |
| <input type="radio"/> | $Ax^2 + Bx + C$ |

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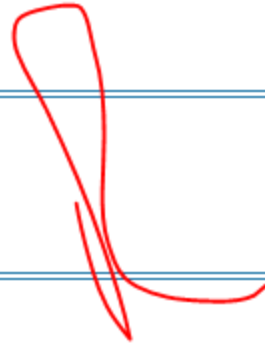
Question # 9 of 10 (Start time: 09:54:16 AM, 14 June 2021)

The differential operator D possesses the _____ property.

Select the correct option

- | | |
|----------------------------------|--------------|
| <input type="radio"/> | inverse |
| <input type="radio"/> | closure |
| <input checked="" type="radio"/> | linearity |
| <input type="radio"/> | nonlinearity |

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Question # 10 of 10 (Start time: 09:54:33 AM, 14 June 2021)

Total Marks: 1

Consider the non - homogeneous linear differential equation, $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y' + a_0 y = g(x)$.
If the input function, $g(x) = e^{5x}$, then the assumed particular solution y_p could be _____.

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|-------------------------------------|
| <input type="radio"/> | $(Ax^2 + Bx + C)e^{5x}$ |
| <input checked="" type="radio"/> | Ae^{5x} |
| <input type="radio"/> | $Ae^{5x} \cos 5x + Be^{5x} \sin 5x$ |
| <input type="radio"/> | $(Ax + B)e^{5x}$ |

2nd account

Question # 1 of 10 (Start time: 10:19:49 AM, 14 June 2021)

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If 2,3,5 are real roots of a differential equation, then the general solution is_____.

Select the correct option

[Reload Math](#)

$$y_c = \|(c_1 + c_2 + c_3)e^{3x} + e^{2x}$$



$$y_c = c_1 e^{2x} + c_2 e^{-3x} + c_3 e^{5x}$$

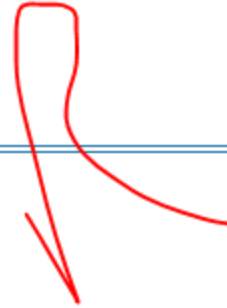


$$y_c = c_1 e^{2x} + c_2 e^{3x} + c_3 e^{5x}$$



$$y_c = c_1 e^{2x} + c_1 e^{-3x} + c_1 e^{5x}$$

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Question # 2 of 10 (Start time: 10:20:20 AM, 14 June 2021)

Total Marks:

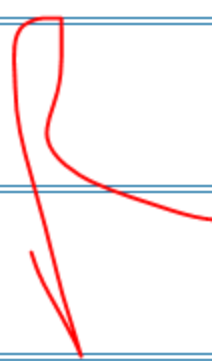
Consider the non - homogeneous linear differential equation, $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y' + a_0 y = g(x)$.
If the input function, $g(x) = e^{5x}$, then the assumed particular solution y_p could be _____.

Select the correct option

[Reload Math Equations](#)

| | |
|----------------------------------|-------------------------------------|
| <input checked="" type="radio"/> | Ae^{5x} |
| <input type="radio"/> | $(Ax^2 + Bx + C)e^{5x}$ |
| <input type="radio"/> | $(Ax + B)e^{5x}$ |
| <input type="radio"/> | $Ae^{5x} \cos 5x + Be^{5x} \sin 5x$ |

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Question # 3 of 10 (Start time: 10:20:38 AM, 14 June 2021)

Wronskian of 1 and x^2 , $W(1, x^2) = \underline{\hspace{2cm}}$

Select the correct option

| | |
|----------------------------------|---------------|
| <input type="radio"/> | x |
| <input checked="" type="radio"/> | 2x |
| <input type="radio"/> | 0 |
| <input type="radio"/> | None of these |

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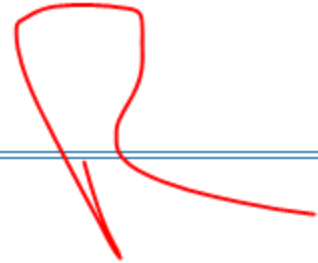
Question # 4 of 10 (Start time: 10:20:53 AM, 14 June 2021)

Total Marks: 1

Consider the non - homogeneous linear differential equation, $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y' + a_0 y = g(x)$.
If the input function, $g(x) = x^3 - x + 1$, then the assumed particular solution y_p could be _____.

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|------------------------|
| <input type="radio"/> | $Ax^2 + Bx + C$ |
| <input type="radio"/> | $Ax + B$ |
| <input type="radio"/> | A |
| <input checked="" type="radio"/> | $Ax^3 + Bx^2 + Cx + D$ |
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- 

Question # 5 of 10 (Start time: 10:21:10 AM, 14 June 2021)

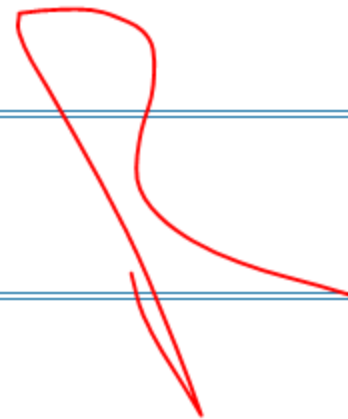
Total Mark

The combination of the Newton's second law and the Hook's law could lead to a differential equation governing to the motion of a mass attached to spring i.e. _____ motion.

Select the correct option

- | | |
|----------------------------------|-----------------|
| <input type="radio"/> | rotational |
| <input checked="" type="radio"/> | simple harmonic |
| <input type="radio"/> | translational |
| <input type="radio"/> | linear |

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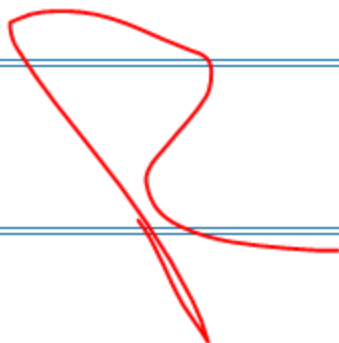
Question # 6 of 10 (Start time: 10:21:28 AM, 14 June 2021)

Total Marks:

For a second order linear ODE, if y_1 and y_2 are its solutions, and further $W(y_1, y_2) = 2$, $W_1 = \frac{e^{-x}}{x}$,
then $u'_1 =$ _____.

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|----------------------|
| <input type="radio"/> | $-\frac{e^{-x}}{2x}$ |
| <input type="radio"/> | $\frac{e^{-x}}{x}$ |
| <input type="radio"/> | $2x e^{-x}$ |
| <input checked="" type="radio"/> | $\frac{e^{-x}}{2x}$ |
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- 

Question # 7 of 10 (Start time: 10:21:48 AM, 14 June 2021)

$$y = e^{(1/2)x} \left(c_1 \cos \frac{\sqrt{3}}{2} x + c_2 \sin \frac{\sqrt{3}}{2} x \right)$$

is the complementary solution of

$$y'' - y' + y = 2 \sin 3x$$


, then the general form of its particular solution is

$$y_p$$

= _____

Select the correct option

[Reload](#)

- | | |
|----------------------------------|---------------------------|
| <input type="radio"/> | $3A \sin 3x + 3B \cos 3x$ |
| <input type="radio"/> | $3 \cos 3x + 3 \sin 3x$ |
| <input type="radio"/> | $3A \cos 3x + 3A \sin 3x$ |
| <input checked="" type="radio"/> | $A \cos 3x + B \sin 3x$ |
- 

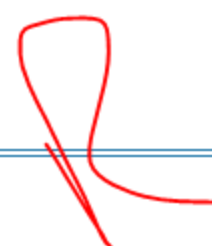
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Question # 8 of 10 (Start time: 10:22:11 AM, 14 June 2021)

Wronskian, $W(x, -3x) = \underline{\hspace{2cm}}$.

Select the correct option

Rel

- | | |
|----------------------------------|-------|
| <input checked="" type="radio"/> | 0 |
| <input type="radio"/> | 1 |
| <input type="radio"/> | $3x$ |
| <input type="radio"/> | $-3x$ |
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- 

Question # 9 of 10 (Start time: 10:22:29 AM, 14 June 2021)

A set of functions

$$\{f_1(x), f_2(x), f_3(x), \dots, f_n(x)\}$$

is said to be _____ on an interval I if there exist constants

$$c_1, c_2, c_3, \dots, c_n$$

not all zero, such that

$$c_1 f_1(x) + c_2 f_2(x) + \dots + c_n f_n(x) = 0, \quad \forall x \in I$$

Select the correct option

Reload M

| | |
|----------------------------------|--------------------|
| <input checked="" type="radio"/> | linear dependent |
| <input type="radio"/> | linear independent |

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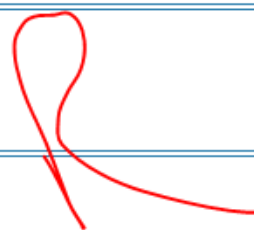
Question # 10 of 10 (Start time: 10:22:47 AM, 14 June 2021)

Tot

The roots of the auxiliary equation, $2m^2 - 5m - 3 = (2m + 1)(m - 3) = 0$, for a differential equation is _____

Select the correct option

[Reload Math E](#)

- | | |
|----------------------------------|-------------------------------|
| <input checked="" type="radio"/> | $m_1 = -\frac{1}{2}, m_2 = 3$ |
| <input type="radio"/> | $m = 3$ |
| <input type="radio"/> | $m = -\frac{1}{2}$ |
| <input type="radio"/> | $m_1 = 1, m_2 = -3$ |
- 

3rd account

Question # 1 of 10 (Start time: 03:41:35 PM, 14 June 2021)

What is annihilator operator of the function

$$g(x) = x^4 + 5$$

?

Select the correct option

Re

- | | |
|----------------------------------|-------------|
| <input checked="" type="radio"/> | D^5 |
| <input type="radio"/> | (D-4) |
| <input type="radio"/> | $(D + 5)^4$ |
| <input type="radio"/> | (D+4) |

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Question # 2 of 10 (Start time: 03:42:07 PM, 14 June 2021)

The periodic time is given by

Select the correct option

[Reload](#)

- | | |
|----------------------------------|-----------------------|
| <input type="radio"/> | $\frac{\omega}{2\pi}$ |
| <input type="radio"/> | $2\pi * \omega$ |
| <input checked="" type="radio"/> | $\frac{2\pi}{\omega}$ |
| <input type="radio"/> | $\frac{\pi}{\omega}$ |

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Question # 3 of 10 (Start time: 03:42:27 PM, 14 June 2021)

The differential operator D transforms a _____ function into another function.

Select the correct option

- | | |
|----------------------------------|----------------|
| <input type="radio"/> | integrable |
| <input checked="" type="radio"/> | differentiable |
| <input type="radio"/> | discontinuous |
| <input type="radio"/> | continuous |

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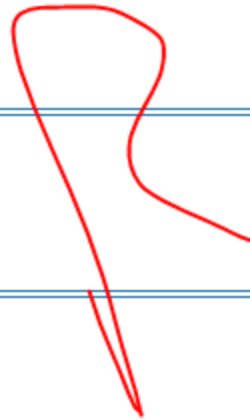
Question # 4 of 10 (Start time: 03:42:57 PM, 14 June 2021)

How are frequency and period related in simple harmonic motion?

Select the correct option

- | | |
|----------------------------------|----------------------------|
| <input type="radio"/> | None of the above |
| <input type="radio"/> | Their sum is constant |
| <input checked="" type="radio"/> | They are inversely related |
| <input type="radio"/> | They are directly related |

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Question # 5 of 10 (Start time: 03:43:16 PM, 14 June 2021)

Wronskian of 1 and x^2 , $W(1, x^2) = \underline{\hspace{2cm}}$

Select the correct option



- | | |
|----------------------------------|---------------|
| <input checked="" type="radio"/> | 2x |
| <input type="radio"/> | x |
| <input type="radio"/> | None of these |
| <input type="radio"/> | 0 |

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Question # 6 of 10 (Start time: 03:43:36 PM, 14 June 2021)

Total Marks

We can derive a differential equation governing the motion of a mass attached to spring when the Newton's second law combined with _____.

Select the correct option

- | | |
|----------------------------------|------------------|
| <input checked="" type="radio"/> | Hook's law |
| <input type="radio"/> | Newton's 3rd law |

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Question # 7 of 10 (Start time: 03:43:56 PM, 14 June 2021)

Total Mark

Consider the non - homogeneous linear differential equation, $a_n y^{(n)} + a_{n-1} y^{(n-1)} + \dots + a_1 y' + a_0 y = g(x)$.
If the input function, $g(x) = \text{constant}$ (say 1), then the assumed particular solution y_p could be _____

Select the correct option

[Reload Math Equation](#)

- | | |
|----------------------------------|------------------------|
| <input type="radio"/> | $Ax + B$ |
| <input type="radio"/> | $Ax^2 + Bx + C$ |
| <input type="radio"/> | $Ax^3 + Bx^2 + Cx + D$ |
| <input checked="" type="radio"/> | A |
- Riz Mughal*
- 

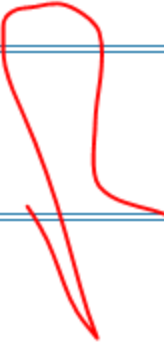
Question # 8 of 10 (Start time: 03:44:16 PM, 14 June 2021)

Total

The roots of the auxiliary equation, $m^2 - 10m + 25 = (m - 5)^2 = 0$, for a differential equation is ____

Select the correct option

[Reload Math Eq](#)

- | | |
|----------------------------------|------------------|
| <input type="radio"/> | $m = 25$ |
| <input type="radio"/> | $m_1 = m_2 = 25$ |
| <input type="radio"/> | $m = - 10$ |
| <input checked="" type="radio"/> | $m_1 = m_2 = 5$ |
- Riz Mughal*
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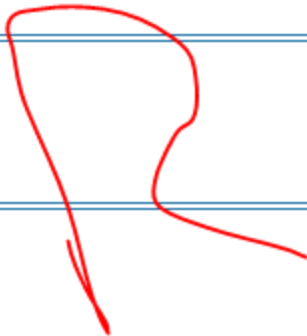
Question # 9 of 10 (Start time: 03:44:38 PM, 14 June 2021)

Total Marks: 1

For a second order linear ODE, if y_1 and y_2 are its solutions, and further $W(y_1, y_2) = 2$, $W_1 = \frac{e^{-x}}{x}$,
then $u'_1 = \underline{\hspace{2cm}}$.

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|----------------------|
| <input checked="" type="radio"/> | $\frac{e^{-x}}{2x}$ |
| <input type="radio"/> | $-\frac{e^{-x}}{2x}$ |
| <input type="radio"/> | $\frac{e^{-x}}{x}$ |
| <input type="radio"/> | $2x e^{-x}$ |
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- 


Question # 10 of 10 (Start time: 03:44:59 PM, 14 June 2021)

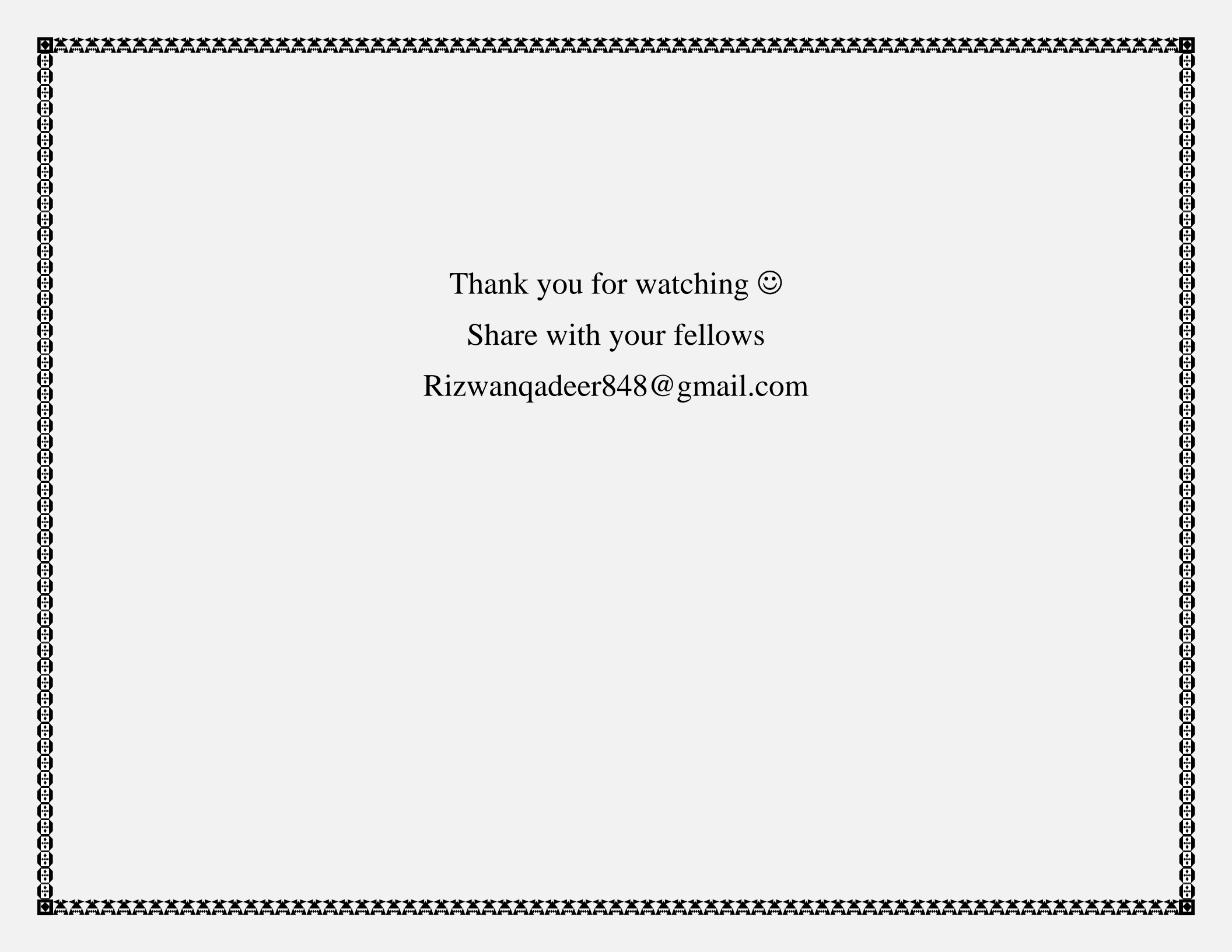
The gravitational force exerted by the earth on a body of mass m is called ----- of the body.

Select the correct option

| | |
|----------------------------------|--------|
| <input checked="" type="radio"/> | weight |
| <input type="radio"/> | Force |

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Thank you for watching 😊
Share with your fellows
Rizwanqadeer848@gmail.com