The curve $f(x,y) = 3ay^2 - x^3 + x^2a$ is symmetric about .....

**Answer ( Please select your correct option )**

- X-axis ✓
- Y-axis
- Origin
- All of these

**MTH403** Calculus and Analytical Geometry - II

**Question No : 40 of 52** **Marks: 1**

A spherical triangle is that part of the surface of a sphere which is bounded by the arcs of _____ circles.

**Answer ( Please select your correct option )**

- two great
- two semi-great
- three small
- three great ✓

**MTH403** Calculus and Analytical Geometry - II

**Question No : 4 of 52**

In the equation $\alpha = \theta + \psi$ , $\alpha$ is the angle between tangent line and

**Answer ( Please select your correct option )**

- initial line
- normal line
- radius vector ✓
- None of these

Question # 28 of 30 ( Start time: 12:43:02 PM, 02 July 2020 )

Complex power of a complex number . . . . Complex

Select the correct option

- ei always
- may or may not be ✓

**MTH403** Calculus and Analytical Geometry - II

**Question No : 19 of 52**

Ellipsoid is symmetrical about

**Answer ( Please select your correct option )**

- $xy-$ plane
- $yz-$ plane
- $xz-$ plane
- All coordinate planes ✓

**Question # 7 of 30 ( Start time: 12:18:34 PM, 02 July 2020 )**

The modulus of all nth roots of any complex number is

**Select the correct option**

- equal
- different ✓

stion # 17 of 30 ( Start time: 12:30:10 PM, 02 July 2020 )

This equation $\frac{(x-2)^2}{9} - \frac{(y+4)^2}{64} = 1$ represents

elect the correct option

- Circle
- Ellipse
- Parabola
- Hyperbola ✓

**Question # 26 of 30 ( Start time: 12:40:31 PM, 02 July 2020 )**

The reflection of a complex number about imaginary axis is called its conjugate

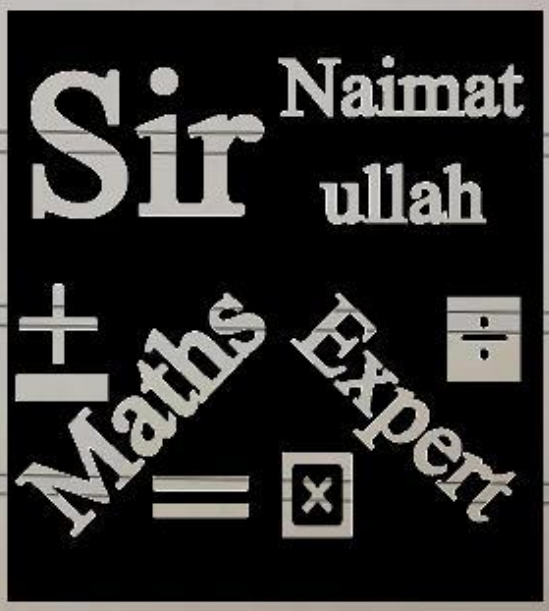
**Select the correct option**

- true
- false ✓

A spherical triangle is that part of the surface of a sphere which is bounded by the arcs of _____ circles

**Answer ( Please select your correct option )**

- two great
- two semi-great
- three small
- three great ✓



stion # 17 of 30 ( Start time: 12:30:10 PM, 02 July 2020 )

This equation $\frac{(x-2)^2}{9} - \frac{(y+4)^2}{64} = 1$ represents

lect the correct option

- Circle
- Ellipse
- Parabola
- Hyperbola ✓

$\sin z = ?$

correct option

$\frac{e^{iz} + e^{-iz}}{2}$

$\frac{e^{iz} - e^{-iz}}{2i}$ ✓

$\frac{e^{iz} - e^{-iz}}{e^{iz} + e^{-iz}}$

$\frac{e^{iz} + e^{-iz}}{e^{iz} - e^{-iz}}$

**MTH403** Calculus and Analytical Geometry - II

**Question No : 9 of 52**

Common root(s) of the equations: $x^2-1=0, x^3-1=0, \ldots, x^n-1=0$ is/are ------

**Answer ( Please select your correct option )**

- 0
- 1
- -1 ✓
- $\pm i$

Trace of cone $x^2+\frac{y^2}{4}=z^2$ in $xz-$ plane is

nswer ( Please select your correct option )

- $y=\pm 2z$
- $x=\pm z$ ✓
- $x=\pm\frac{y}{2}$
- No trace

If $\psi$ is the angle between radius vector and the tangent line to a curve, then $\tan\psi$ =.....

**Answer ( Please select your correct option )**

- $r-\frac{d\theta}{dr}$
- $r\frac{dr}{d\theta}$
- $r\frac{d\theta}{dr}$
- $r\frac{d\theta}{dr}$ ✓

estion No : 12 of 52 Marks: 1

Which of the following is true for the function $f(x) = 2x^2 + 5x - 1; x \in \mathbb{R}$ ?

nswer ( Please select your correct option )

- It has a critical number at x = -5/4 ✓
- It does not have only critical numbers
- It has a critical number at x=5/4
- None of the above

MTH403:Grand Quiz

Quiz Start Time: 06:34 PM, 03 July 2020

Question # 5 of 30 ( Start time: 06:35:57 PM, 03 July 2020 )

Total Marks: 1

The value of principal argument lies within the range

Select the correct option

Reload Math Equations

- $-2\pi < \theta < 2\pi$
- $-\pi < \theta < \pi$

A great circle is a section of a sphere that contains ... of the sphere.

Answer ( Please select your correct option )

- Diameter ✓
- Circumference
- Arc
- None of these

d 30 ( Start time: 12:39:12 PM, 02 July 2020 )

The hyperbola $x^2 - y^2 = 1$ is shifted two units left and five units up. What is the equation of this new hyperbola

rrect option

$(x-1)^2 - (y+5)^2 = 1$

$(x+1)^2 - (y-5)^2 = 1$ ✓

$(x-1)^2 - (y-5)^2 = 1$

None of these

uestion # 5 of 10 ( Start time: 08:04:50 PM, 17 August 2020 ) Total Marks: 1

*If $f'(x)$ has the same sign on both left and right sides of $x_0$ on an open interval, then $f$..... relative extremum/extrema at $x_0$.*

elect the correct option

Reload Math Equations

- Does not have
- One
- Two
- Three

Question # 24 of 30 ( Start time: 06:52:01 PM, 03 July 2020 ) Total Marks: 1

For a hyperbola with vertices $(\pm a, 0)$ . If $d_1$ and $d_2$ are the distances of a point $(x, y)$ from its foci then . . . . . .

Select the correct option

Reload Math Equations

- [x] $|d_2 - d_1| = 2a$
- [ ] $d_2 - d_1 = 2b$
- [ ] $|d_2 - d_1| = 2b$
- [ ] $|d_2 - d_1| = a + b$

**MTH403** Calculus and Analytical Geometry - II

**Question No : 17 of 52**

$\frac{x^2}{2^2}+\frac{y^2}{3^2}=1$ is the equation of

**Answer ( Please select your correct option )**

- Hyperbolic cylinder
- Parabolic cylinder
- Elliptic cylinder ✓
- Circular cylinder

MTH403:Grand Quiz

Quiz Start Time: 06:34 PM, 03 July 2020

Question # 7 of 30 ( Start time: 06:37:14 PM, 03 July 2020 )

Total Marks: 1

$$\tan z = ?$$

Select the correct option

Reload Math Equations

- $\frac{e^{iz} + e^{-iz}}{2}$
- $\frac{e^{iz} - e^{-iz}}{2}$
- $\frac{e^{iz} - e^{-iz}}{i(e^{iz} + e^{-iz})}$ ✓
- $\frac{e^{iz} + e^{-iz}}{e^{iz} - e^{-iz}}$ ✗

$\frac{x^2}{16}+\frac{y^2}{36}+1=\frac{z^2}{64}$ is an equation of

**Answer ( Please select your correct option )**

- Hyperboloid of two sheets ✓
- Hyperboloid of one sheet
- Paraboloid
- Ellipsoid

MTH403:Grand Quiz

Quiz Start Time: 06:34 PM, 03 July 2020

Question # 1 of 30 ( Start time: 06:34:25 PM, 03 July 2020 )

Total Marks: 1

$ax^5 + bx^3 + cx^2 + d\, is\, a\, polynomial\, of\, \deg ree...$

Select the correct option

Reload Math Equations

- 4
- 5
- 6
- 3

**Question # 5 of 5 ( Start time: 06:03:47 PM, 23 June 2020 )**

Which of the following complex number is greatest

**Select the correct option**

- ○ $2 + 2i$
- ○ $2 + 3i$
- ○ $2 + 4i$
- ○ No conclusion can be made ✓

Question # 11 of 30 ( Start time: 12:23:15 PM, 02 July 2020 )

In the conic section, the eccentricity e of parabola is . . . . .

Select the correct option

- e = 0 ✓
- e < 1
- e > 1
- e = 1

MTH403:Grand Quiz

Quiz Start Time: 06:34 PM, 03 July 2020

Question # 12 of 30 ( Start time: 06:42:12 PM, 03 July 2020 )

Total Marks:

For the given standard form of the circle

$$(x+2)^2+(y-2)^2=4$$

, its radius and center will be . . . . . .

Select the correct option

Reload Math Equations

- 4 and (-2,2) respectively
- 2 and (-2,2) respectively
- 4 and (2,2) respectively
- 2 and (2,-2) respectively

**Question # 3 of 5 ( Start time: 06:02:04 PM, 23 June 2020 )**

The complex number $z = a - ib$ can also be written as

**Select the correct option**

| | |
|---|---|
| ○ | $\{a, -b\}$ |
| ○ | $(a, -b)$ ✓ |
| ○ | $[a, -b]$ |
| ○ | $[-b, a]$ |

Question # 6 of 10 ( Start time: 08:05:22 PM, 17 August 2020 ) Total Mark

Which of the following is not true for the function $f(y) = y^2;\ 1 \leq y \leq 10$

Select the correct option

Reload Math Equation

- It has a critical point at x = 0
- It has a critical point at x = 5
- [x] It has no critical point
- None of the other

Question # 7 of 10 ( Start time: 08:06:10 PM, 17 August 2020 ) Total Mark

A Point on the curve through which more than one branch of the curve pass is called

Select the correct option

Reload Math Equation

- Multiple Point
- Singular point
- Critical point
- None of the other

**MTH403** Calculus and Analytical Geometry - II

**Question No : 33 of 52** **Marks: 1 (Budgete**

A spherical triangle is a figure formed on the surface of a sphere by three great circular arcs intersecting pair-wise in

**Answer ( Please select your correct option )**

- One vertex
- Two vertices
- Three vertices ✓
- None of them

MTH403:Grand Quiz

Quiz Start Time: 06:

Question # 16 of 30 ( Start time: 06:44:59 PM, 03 July 2020 )

The principal argument of $z = 1 + i$ is

Select the correct option

Reloa

- $\frac{\pi}{4}$
- $\frac{\pi}{3}$

of 30 ( Start time: 12:39:12 PM, 02 July 2020 )

The hyperbola $x^2 - y^2 = 1$ is shifted two units left and five units up. What is the equation of this new hyperbola

rrect option

$(x-1)^2 - (y+5)^2 = 1$

$(x+1)^2 - (y-5)^2 = 1$ ✓

$(x-1)^2 - (y-5)^2 = 1$

None of these

**MTH403** Calculus and Analytical Geometry - II

**Question No : 40 of 52** **Marks:**

A spherical triangle is that part of the surface of a sphere which is bounded by the arcs of _____ circles.

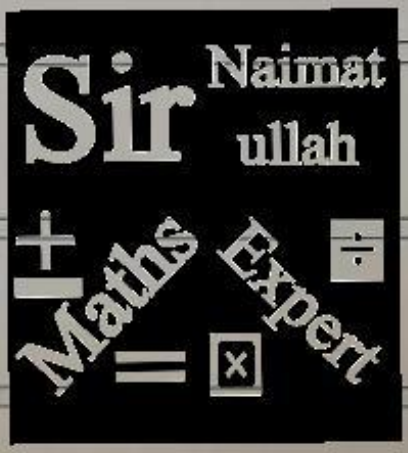
**Answer ( Please select your correct option )**

- two great
- two semi-great
- three small
- three great ✓

A spherical triangle is that part of the surface of a sphere which is bounded by the arcs of _____ circles.

**Answer ( Please select your correct option )**

- two great
- two semi-great
- three small
- three great ✓



MTH403:Grand Quiz

Question # 4 of 30 ( Start time: 06:35:30 PM, 03 July 2020 )

The coordinates of the vertex of the parabola $(x-1)^2 = 4(y-2)$ is _____.

Select the correct option

- (0, 2)
- (0, 3)
- (1, 2)
- (1, 3)

**MTH403** Calculus and Analytical Geometry - II

**Question No : 25 of 52**

$\frac{x^2}{4}+\frac{y^2}{9}-\frac{z^2}{16}=-1$ is an equation of

**Answer ( Please select your correct option )**

- Elliptic Paraboloid
- Hyperbolic Paraboloid
- Hyperboloid of two sheets ✓
- Hyperboloid of one sheet

If two tangents at the origin are imaginary, then the origin is a .....

**Answer ( Please select your correct option )**

- point of inflexion
- Conjugate point ✓
- Node
- Cusp

**MTH403** Calculus and Analytical Geometry - II

**Question No : 5 of 52** **Marks: 1 (Be**

If $\psi$ is the angle between radius vector and the tangent line to a curve, then $\tan\psi$ =.....

**Answer ( Please select your correct option )**

- $r-\frac{d\theta}{dr}$
- $r\frac{dr}{d\theta}$
- $r\frac{d\theta}{dr}$
- $r\frac{d\theta}{dr}$ ✓

**MTH403** Calculus and Analytical Geometry - II

**Question No : 22 of 52**

The study of geometrical shapes on the surface of sphere is called...

**Answer ( Please select your correct option )**

- Spherical trigonometry
- Spherical geometry ✓
- Solid geometry
- Plane geometry

MTH403:Grand Quiz

Quiz Star

Question # 1 of 30 ( Start time: 06:34:25 PM, 03 July 2020 )

$ax^5 + bx^3 + cx^2 + d$ is a polynomial of degree...

Select the correct option

- 4
- 5
- 6
- 3

MTH403:Grand Quiz

Question # 6 of 30 ( Start time: 06:36:16 PM, 03 July 2020 )

If $\theta$ is measure of the angle between the two straight lines represented by $ax^2 + 2hxy + by^2 = 0$ then _____.

Select the correct option

- $\tan\theta = \frac{m_1 m_2}{1 + m_1 m_2}$
- $\tan\theta = \frac{m_1 - m_2}{m_1 m_2}$
- $\tan\theta = \frac{m_1 - m_2}{1 - m_1 m_2}$
- $\tan\theta = \frac{m_1 - m_2}{1 + m_1 m_2}$

**Question # 2 of 5 ( Start time: 06:01:34 PM, 23 Jun**

The polar form of $z = 2 - 2i$ is

**Select the correct option**

| | |
|---|---|
| ✓ | $\sqrt{8}e^{-i\frac{\pi}{4}}$ |
| ○ | $\sqrt{8}e^{i\frac{\pi}{4}}$ |

**MTH403** Calculus and Analytical Geometry - II

**Question No : 6 of 52**

If $x = \cos\theta + i\sin\theta$, then $\frac{1}{x} = \cdots$

**Answer ( Please select your correct option )**

- $\cos\theta + i\sin\theta$
- $-\cos\theta + i\sin\theta$
- $-\cos\theta - i\sin\theta$
- $\cos\theta - i\sin\theta$ ✓

Which of the following is not true for $\frac{4x^4+10x+5}{5x^2+2x+3}$.

Answer ( Please select your correct option )

- It must have x-axis horizontal asymptote
- It must have a slant asymptote ✓
- y = 4/5 is the horizontal asymptote
- None of the above

The conic $r = \frac{l}{1 - e\cos\theta}$ always represents a hyperbola if

**Answer ( Please select your correct option )**

- e=0
- e<1 ✓
- e>1
- e=1

**Question # 18 of 30 ( Start time: 12:31:39 PM, 02 July 2020 )**

De Moivre's theorem is a used to derive Euler's formula

**Select the correct option**

- ○ true
- ○ false

Question # 4 of 5 ( Start time: 06:02:59 PM, 23 June 2020 )

If $C$ is the set of complex numbers and $R$ is the set of real numbers then Which of the following is tru

Select the correct option

- $R \subseteq C$
- $C \subseteq R$
- $R \subset C$ ✓
- $C \subset R$

tion # 8 of 30 ( Start time: 12:19:39 PM, 02 July 2020 )

$$Centre of the hyperbola is \frac{y^2}{25} - \frac{(x+2)^2}{16} = 1$$

ct the correct option

- (5, 4)
- (0, 2)
- (-2, 0) ✓
- (2, 0)

**MTH403** Calculus and Analytical Geometry - II

**Question No : 26 of 52**

If $f'(x) < 0; \forall\, x \in [a,b]$ then $f(x)$ is _____

**Answer ( Please select your correct option )**

- Increasing on [a, b]
- Decreasing on [a, b] ✓
- Discontinuous on [a, b]
- None of them

**MTH403** Calculus and Analytical Geometry - II

**Question No : 34 of 52**

In context of the spherical triangles, law of **Sines** are_____

**Answer ( Please select your correct option )**

- sin a/sin A = sin b/sin B = sin c/sin C ✓
- sin a/sin B = sin b/sin A = sin c/sin C
- sin a/sin A = sin b/sin C = sin c/sin B
- None of them

The angle between the meridian of a place with the standard meridian is called

**Answer ( Please select your correct option )**

- latitude
- longitude ✓
- co-latitude
- South to Eastco-longitude

Question No : 20 of 52

The singular points of $x^2(x-2)^2y''+(x-2)y'+3x^2y=0$ are

Answer ( Please select your correct option )

- 1,2
- 4,5
- 0,2 ✓
- None of the above

In the ellipse $\frac{x^2}{9} + \frac{y^2}{16} = 1$, the length of the major axis is _____

**Select the correct option**

- ○ 3
- ○ 4 ✓
- ○ 6
- ○ 8

**Question No : 19 of 52**

Ellipsoid is symmetrical about

**Answer ( Please select your correct option )**

- $xy-$ plane
- $yz-$ plane
- $xz-$ plane
- All coordinate planes ✓

**MTH403** Calculus and Analytical Geometry - II

**Question No : 36 of 52** **Marks: 1 (Budgeted**

Suppose that the earth is regarded as a sphere spinning about a diameter $\overrightarrow{PQ}$. Here P and Q represent the respectively of the earth.

**Answer ( Please select your correct option )**

- north and west
- north and south ✓
- east and west
- north and east

Question # 3 of 10 ( Start time: 08:03:54 PM, 17 August 2020 )

A function f has a local minimum at a point "d" if ..... in some open interval containing "d".

Select the correct option

- $f(d)f(x) \geqslant 0$
- $f(d) < f(x)$
- $f(d)f(x) = 0$
- $f(d) \geqslant f(x)$

A spherical triangle is a figure formed on the surface of a sphere by three great circular arcs intersecting pair-wise

Answer ( Please select your correct option )

- One vertex
- Two vertices
- Three vertices ✓
- None of them

Meridian through the Khana-e-Ka'aba is referred as _____.

Answer ( Please select your correct option )

- standard meridian
- classical meridian ✓
- longitude
- latitude

**Question # 6 of 30 ( Start time: 12:17:42 PM, 02 July 2020 )**

For the ellipse $\frac{(x-3)^2}{9}+\frac{(y-2)^2}{4}=1$, length of its major axis is .....

**Select the correct option**

- ○ 9 ✓
- ○ 4
- ○ 6
- ○ 8

**MTH403 Grand Quiz**

**Question # 1 of 30 ( Start time: 12:10:35 PM, 02 July 2020 )**

$ax^2 + by^2 + 2hxy + 2gx + 2fy + c = 0$ will be a homogeneous equation of 2nd degree if the following coefficients are not simultaneou

**Select the correct option**

- a. b and g
- a. b and h ✓
- b. h and g
- a. b and c

**Question # 9 of 30 ( Start time: 12:20:35 PM, 02 July 2020 )**

Which conic is represented by the equation $r = \frac{5}{2+2\cos\theta}$.

**Select the correct option**

- ○ Ellipse
- ○ Hyperbola ✓
- ○ Parabola
- ○ Circle

MTH403:Grand Quiz

Question # 18 of 30 ( Start time: 06:46:26 PM, 03 July 2020 )

Using Euler's formula $e^{i\pi} + e^{-i\pi} =$

Select the correct option

- [x] $-2$
- [ ] $2$

Question # 5 of 30 ( Start time: 12:16:22 PM, 02 July 2020 )

For the hyperbola $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$, coordinates of vertices are .....

Select the correct option

- $(0, \pm b)$
- $(0, 0)$
- $(\pm a, \pm b)$ ✓
- $(a, b)$

**Question # 4 of 5 ( Start time: 06:02:59 PM, 23 June 2020 )**

If $C$ is the set of complex numbers and $R$ is the set of real numbers then Which of the following is true

**Select the correct option**

- $R \subset C$
- $C \subset R$
- $R \subset C$ ✓
- $C \subset R$

tion # 3 of 30 ( Start time: 12:13:45 PM, 02 July 2020 )

$ax^5 + bx^3 + cx^2 + d$ is a polynomial of degree...

t the correct option

4

5 ✓

6

3

Sir Naimat ullah Maths Expert

**MTH403:Grand Quiz**

**Question # 14 of 30 ( Start time: 06:43:23 PM, 03 July 2020 )**

The conic is a hyperbola if $e$(eccentricity) is _____ .

**Select the correct option**

- ○ equal to 1
- ○ less than 1
- ■ greater than 1
- ○ between 0 and 1

**MTH403** Calculus and Analytical Geometry - II

**Question No : 2 of 52**

The equation of horizontal line through (1,2) in polar coordinates is


**Answer ( Please select your correct option )**

- $r\cos\theta = 2$
- $r\sin\theta = 2$ ✓
- $y = 2$
- $x = 1$

**MTH403** Calculus and Analytical Geometry - II

**Question No : 3 of 52**

The conic $r = \frac{l}{1 - e\cos\theta}$ always represents a hyperbola if

**Answer ( Please select your correct option )**

- $e=0$
- $e<1$
- $e>1$ ✓
- $e=1$

**MTH403** Calculus and Analytical Geometry - II

**Question No : 27 of 52**

A point on a curve through which three branches of a curve pass is called.....

**Answer ( Please select your correct option )**

- Double point
- Singular point
- Multiple point
- None of the above ✓

Common root(s) of the equations: $x^2-1=0, x^3-1=0, \ldots, x^n-1=0$ is/are ------

**Answer ( Please select your correct option )**

- 0
- 1 ✓
- -1
- $\pm i$

**Question # 14 of 30 ( Start time: 12:26:31 PM, 02 July 2020 )**

For the ellipse $\frac{(x-3)^2}{9} + \frac{(y+2)^2}{4} = 1$, its center is located at .....

**Select the correct option**

- ○ (-3,2)
- ○ (9,4)
- ○ (-3,-2)
- ○ (3,-2) ✓

MTH403:Grand Quiz

Question # 28 of 30 ( Start time: 06:55:10 PM, 03 July 2020 )

$$e^{\pi i} = ?$$

Select the correct option

- 0
- 1
- 2
- -1

Question # 9 of 10 ( Start time: 08:08:13 PM, 17 August 2020 )

*A point on the curve through which r branches of the curve pass is called Multiple point of*

**Select the correct option**

- pth order
- sth order
- rth order
- Multiple order

$\frac{x^2}{9}+\frac{y^2}{16}=z$ is an equation of

Answer ( Please select your correct option )

- Elliptic paraboloid ✓
- Hyperbolic paraboloid
- Hyperboloid of one sheet
- Hyperboloid of two sheets

**Question # 23 of 30 ( Start time: 12:37:09 PM, 02 July 2020 )**

Let $x = \cos\theta - i\sin\theta$, then $x - \frac{1}{x} =$

**Select the correct option**

| | |
|---|---|
| ○ | $2i\sin\theta$ |
| ○ | $-2i\sin\theta$ ✓ |

MTH403:Grand Quiz

Question # 9 of 30 ( Start time: 06:39:35 PM, 03 July 2020 )

The conic is an ellipse if $h^2 - ab$ is _____.

Select the correct option

- equal to 0
- less than 0
- greater than 0
- between 0 and 1

**Question # 29 of 30 ( Start time: 12:44:04 PM, 02 July 2020 )**

For the complex number $z = a$, imaginary part is

**Select the correct option**

| | |
|---|---|
| ○ | 1 |
| ✓ | 0 |

meridian which passes through the fundamental instrument of Greenwich observatory is regarded as _

ver ( Please select your correct option )

equator

meridian

classical meridian

standard meridian ✓

**MTH403** Calculus and Analytical Geometry - II

**Question No : 13 of 52**

If $\frac{df}{dx} > 0$, *at* $P(x, y)$, then

**Answer ( Please select your correct option )**

- $f(x)$ is an increasing function at P(x,y) ✓
- $f(x)$ is a decreasing function at P(x,y)
- $f(x)$ must has a critical point at P(x,y)
- None of the above

**Question # 1 of 5 ( Start time: 06:00:15 PM, 23 June 2020 )**

The argument of quotient of two complex numbers is equal to the difference of their individual arguments.

**Select the correct option**

- ○ true
- ○ false ✓

**MTH403** Calculus and Analytical Geometry - II

**Question No : 21 of 52**

A branch of geometry that studies about the triangles is called...

**Answer ( Please select your correct option )**

- Plane geometry
- Solid geometry
- ✓ Trigonometry
- Spherical geometry

**MTH403** Calculus and Analytical Geometry - II

**Question No : 10 of 52**

The graph of $\frac{x^2-5x+4}{x^2-1}$ has a vertical asymptote at $x=$

**Answer ( Please select your correct option )**

- 1
- -1
- Both 1 and -1 ✓
- None of the above

**MTH403** Calculus and Analytical Geometry - II

**Question No : 12 of 52** **Marks:**

Which of the following is true for the function $f(x) = 2x^2 + 5x - 1, x \in \mathbb{R}$ ?

**Answer ( Please select your correct option )**

- It has a critical number at x = -5/4 ✓
- It does not have only critical numbers
- It has a critical number at x=5/4
- None of the above

Question # 16 of 30 ( Start time: 12:29:13 PM, 02 July 2020 )

The real valued function

$$f(x) = x^3$$

is_____?

**Select the correct option**

- ○ One-to-one function.
- ○ Onto function.
- ○ Bijective function.
- ○ All of them. ✓

Question # 2 of 10 ( Start time: 08:02:57 PM, 17 August 2020 )

*The functions $y = 4\sqrt{x}$ and $y = -4\sqrt{x}$ are two branches of parabola*

Select the correct option

- ○ $y = 16x$
- ◉ $y^2 = 16x$
- ○ $y^2 = 4x$
- ○ $y^2 = -4x$

**MTH403** Calculus and Analytical Geometry - II

**Question No : 37 of 52** **Marks: 1 (Budgeted Time Ma**

Suppose that the earth is regarded as a sphere spinning about a diameter $\overrightarrow{PQ}$. The great circle whose plane is perpendicular to $\overrightarrow{PQ}$ is called the _____.

**Answer ( Please select your correct option )**

- meridian
- classical meridian
- equator ✓
- standard meridian

MTH403:Grand Quiz

Question # 2 of 30 ( Start time: 06:34:49 PM, 03 July 2020 )

If $P(r, \theta)$ is a point in _____ coordinate system, then $r$ is a distance of point $P$ from the pole.

Select the correct option

- rectangular
- polar
- cartesian
- spherical

**Question # 30 of 30 ( Start time: 12:44:45 PM, 02 July 2020 )**

For the hyperbola $\frac{x^2}{9} - \frac{y^2}{16} = 1$, the coordinates of the foci are .....

**Select the correct option**

- ○ $(0, 0)$
- ○ $(9, 16)$
- ○ $(3, 4)$ ✓
- ○ $(\pm 5, 0)$

**Question # 15 of 30 ( Start time: 12:27:41 PM, 02 July 2020 )**

If $A = B$ (both are not equal to 0) in an equation of the form $Ax^2 + By^2 + Gx + Fy + C = 0$ then the equation represents a/an ____

**Select the correct option**

- line
- ellipse
- circle ✓
- parabola

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Question # 23 of 30 ( Start time: 06:51:34 PM, 03 July 2020 )

The following equation represents $\frac{(x-4)^2}{4}+\frac{(y-4)^2}{9}=1$

Select the correct option

- Circle
- Ellipse
- Parabola
- Hyperbola

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Question # 10 of 30 ( Start time: 06:40:00 PM, 03 July 2020 )

On an argand diagram, the cube roots of unity form vertices of an isosceles triangle

Select the correct option

- [x] true
- [ ] false

Question # 20 of 30 ( Start time: 12:33:55 PM, 02 July 2020 )

Using Euler's formula $e^{iz} + e^{-iz} =$


Select the correct option

- $2i \sin x$
- $2 \cos x$ ✓

The intersection of a plane and a sphere is always a/an...

**Answer ( Please select your correct option )**

- Ellipse
- Parabola
- Circle ✓
- Hyperbola

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Question # 15 of 30 ( Start time: 06:43:37 PM, 03 July 2020 )

The nth roots of any complex number can be obtained from the nth roots of unity.

Select the correct option

- [x] true
- [ ] false

Question # 10 of 10 ( Start time: 08:08:41 PM, 17 August 2020 )

*Let* $f(x) = -10x + 50$, *and* $\frac{df(x)}{dx} < 0$, *then*

**Select the correct option**

- ○ f(x) is an increasing function
- ◉ f(x) is a decreasing function
- ○ f(x) must has a critical point
- ○ None of the other

**MTH403** Calculus and Analytical Geometry - II

**Question No : 38 of 52** **Marks: 1**

The meridian which passes through the fundamental instrument of Greenwich observatory is regarded as _

**Answer ( Please select your correct option )**

- equator
- meridian
- classical meridian
- standard meridian ✓

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Question # 3 of 30 ( Start time: 06:35:14 PM, 03 July 2020 )

If $P(x, y)$ and $P(r, \theta)$ are the rectangular and polar coordinates of a point respectively, then . . . .

Select the correct option

- $r = x^2 + y^2$
- $r = x + y$
- $r = \sqrt{x^2 - y^2}$
- $r = \sqrt{x^2 + y^2}$

**Question # 22 of 30 ( Start time: 12:35:58 PM, 02 July 2020 )**

For an ellipse centered at origin, if one of the foci of ellipse is at the point A(1,0), then the distance between the two foci is .....

**Select the correct option**

| | |
|---|---|
| ○ | 1 ✓ |
| ○ | 2 |
| ○ | 4 |
| ○ | $\sqrt{2}$ |

**Question # 24 of 30 ( Start time: 12:38:11 PM, 02 July 2020 )**

For the ellipse $\frac{x^2}{4} + \frac{y^2}{1} = 1$, the sum of the distances $d_1$ and $d_2$ (from a point on ellipse to its foci) is equal to .....

**Select the correct option**

- $d_1 + d_2 = 4$
- $d_1 + d_2 = 1$
- $d_1 + d_2 = 2$ ✓
- $d_1 + d_2 = 0$

$\frac{x^2}{2^2}+\frac{y^2}{3^2}=1$ is the equation of

**Answer ( Please select your correct option )**

- Hyperbolic cylinder
- Parabolic cylinder
- Elliptic cylinder ✓
- Circular cylinder

For $i \in \mathbb{C}$, $\operatorname{cosec} i =$ ------ .

**Answer ( Please select your correct option )**

- $\frac{2i}{e^{-1} - e}$
- $\frac{2i}{e^{-1} + e}$
- $\frac{2}{e^{-1} - e}$ ✓
- $\frac{2}{e^{-1} + e}$

**Question # 12 of 30 ( Start time: 12:24:23 PM, 02 July 2020 )**

The difference of $z$ and $\bar{z}$ is equal to

**Select the correct option**

- $2Imz$ ✓
- $2Rez$

**Question # 8 of 10 ( Start time: 08:07:24 PM, 17 August 2020 )**

Which of the following is true for the function $f(x) = x^2 - 2\,;\, x \in \mathbb{R}$

**Select the correct option**

- (●) It has an absolute minimum value at x=0
- ( ) It has an absolute maximum value at x = 0
- ( ) It does not have an absolute minimum value
- ( ) None of the others

**Question # 25 of 30 ( Start time: 06:53:28 PM, 03 July 2020 )**

For n > 1, Sum of all nth roots of unity is

**Select the correct option**

- [x] 0
- [ ] 1

If $f(x,y,z)=0 \Rightarrow f(x,-y,z)=0$ then the surface is symmetric about

**Answer ( Please select your correct option )**

- $xy-$ plane
- $xz-$ plane ✓
- $yz-$ plane
- Origin

MTH403:Grand Quiz

Question # 29 of 30 ( Start time: 06:55:37 PM, 03 July 2020 )

$$(coshx)^2 - (sinhx)^2$$

=_____?

Select the correct option

| | |
|---|---|
| ■ | 1 |
| ○ | -1 |
| ○ | 0 |
| ○ | None of them |

Question # 4 of 10 ( Start time: 08:04:26 PM, 17 August 2020 )

*The second derivative test gives no information if* $f''(c)$, *(where* $c$ *is a critical point)*

Select the correct option

- [x] =0
- [ ] <0
- [ ] >0
- [ ] ≥0