LECTURERS IN GOVERNMENT POLYTECHNIC COLLEGES (ENGINEERING AND NON-ENGINEERING) IN A.P TECHNICAL EDUCATION SERVICE. - NOTIFICATION NO.23/2018

MATHEMATICS- 14TH MAR 2020 – S2 – REVISED KEY

Question Number : 9 Question Id : 2310982409

The integral surface of $-x^2 p + y^2 q = z^2$ which passes through $2xy = x + y, 4z = 2 = 0$ is:

Answer: Deleted

Question Number : 19 Question Id : 2310982419

Let $u(x)$ be a continuity differentiable function taking non-negative values for $x > 0$ and satisfying $u(x) = 4u^2(x), u(0) = 0$, then the differential equation has:

Answer:

two solutions

Question Number : 32 Question Id : 2310982432

Which of the following is true?

Answer:

If $p: S_3 \rightarrow S_3/A_3$ is natural homomorphism, then $(1,2) \notin \text{Im } p$

$\mathbb{Z}_n$ and $\mathbb{Z}_{n\mathbb{Z}}$ are isomorphic

Question Number : 41 Question Id : 2310982441

The abelian group of order 6 must be cyclic group, if it contains an element of order:

Answer:

6
Let $F$ be a field such that $a \in F$. If $a$ is roots of $x^3 - 3x \in F[x]$, then which of the following is true?

Answer:

$Z_2 \subseteq F$

$\text{Char } F = 3$

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Question Number : 50 Question Id : 2310982450

Let $G$ be a group of order 7 and let $f: G \to G$ be defined by $f(x) = x^4$. Then $f$ is:

Answer:

an isomorphism

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Question Number : 55 Question Id : 2310982455

The group $G$ is abelian if:

Answer:

every subgroup of $G$ is normal in $G$

the function $f: G \to G$, defined by $f(x) = x^{-1}$ for all $x \in G$, is a homomorphism

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Question Number : 56 Question Id : 2310982456

Let $N$ be a normal subgroup of $G$. Then which of the following is true?

Answer:

If $G$ is cyclic, then $G/N$ is abelian
Consider the vectors $v_1 = (1,1,1,1), \ v_2 = (1,1,2,4)$ and $v_3 = (1,2,-4, -3)$. Let the vectors $\{w_1, w_2, w_3\}$ be defined as:

\[
\begin{align*}
    w_1 &= v_1 \\
    w_2 &= v_2 - \alpha w_1 \\
    w_3 &= v_3 - \beta w_1 - \gamma w_2
\end{align*}
\]

Then, the value of $\alpha + \beta + \gamma$ such that the vectors $w_1, w_2, w_3$ are orthogonal to each other is:

**Answer:**

\[
\frac{3}{2}
\]

**Question Number : 125 Question Id : 2310982525**

The function $f(x) = x^2$ is uniformly continuous in:

**Answer: Deleted**

**Question Number : 141 Question Id : 2310982541**

Which of the following statements is/are true for any metric space $(X, d)$:

1. The union of a finite number of closed sets is closed
2. The intersection of an arbitrary family of closed sets is closed
3. The union of an arbitrary family of closed sets is closed
4. The intersection of a finite number of closed sets is closed

**Answer:**

1, 2, 3 and 4

Only 2 and 3

Only 1 and 2