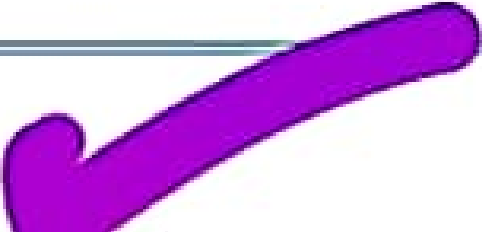


A metric space X is said to be compact if every sequence in X has a _____subsequence

Select the correct option

- | | |
|-----------------------|----------------|
| ☐ | non decreasing |
| ☐ | divergent |
| ☐ | non increasing |
| ☐ | convergent |
- 

Question # 10 of 10 (Start time: 10:49:49 PM, 30 June 2022)

If $T : \mathbb{R}^2 \rightarrow \mathbb{R}^2$ defined by $T(x, y) = (y, -5x + 4y)$, then $T^{-1}(-2, 7) =$ _____

Select the correct option



(3,-2)



(-3,-2)



QA



(-3,2)



(3,2)

Question # 9 of 10 (Start time: 03:25:31 PM, 30 June 2022)

Identity operator is

Select the correct option

☐

Zero operator.

☐

discontinuous operator.

☒

linear operator.



☐

non linear operator.

Question # 10 of 10 (Start time: 05:41:14 AM, 29 June 2022)

Null space of operator T is similar to

Select the correct option

☐	identity operator.
☒	kernel of T .
☐	range of T .
☐	domain of T .

Question # 8 of 10 (Start time: 05:37:56 AM, 29 June 2022)

A norm $\| \cdot \|$ on a vector space X is equivalent to a norm $\| \cdot \|_0$ on X if there are positive numbers a and b such that for all $x \in X$, we have.....

Select the correct option

- ☒ $a\|x\|_0 \leq \|x\| \leq b\|x\|_0$
- ☐ $a\|x\|_0 = \|x\| = b\|x\|_0$
- ☐ $a\|x\|_0 + \|x\| = b\|x\|_0$
- ☐ $a\|x\|_0 - \|x\| + b\|x\|_0$



#69

6

MTH641:Quiz No.2

Question # 3 of 10 (Start time: 05:30:53 AM, 29 June 2022)

A compact subset M of a metric space is _____ and _____

Select the correct option

☐	open, unbounded
☐	open ,bounded
☐	unbounded , closed
☒	bounded , closed

#71



MTH641:Quiz No.2

Question # 2 of 10 (Start time: 05:29:15 AM, 29 June 2022)

Differentiation operator is

Select the correct option

- | | |
|----------------------------------|-------------------------|
| ☒ | linear operator. |
| ☐ | non linear operator. |
| ☐ | Zero operator. |
| ☐ | discontinuous operator. |



#19

Question # 1 of 10 (Start time: 05:27:27 AM, 29 June 2022)

T is a linear operator . If T^{-1} exists, it is a

Select the correct option

☐	Zero operator.
☐	non linear operator.
☐	discontinuous operator.
☒	linear operator.

Equivalent norms on a vector space 'X' defines topology for X.

Select the correct option

☐	none of these
☒	same
☐	coarser
☐	finer

MTH641:Quiz No.2

Question # 6 of 10 (Start time: 05:15:10 PM, 30 June 2022)

Zero operator is

Select the correct option

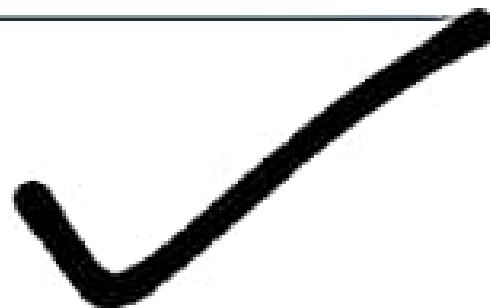
- | | |
|----------------------------------|-------------------------|
| ☐ | identity operator. |
| ☒ | linear operator. |
| ☐ | discontinuous operator. |
| ☐ | non linear operator. |

The mapping, $T : V \rightarrow V$ defined by $T(v) = a + v$, where $v \in V$ is linear if

Select the correct option



$$a = 0$$



$$a \neq 0$$

Question # 3 of 10 (Start time: 05:12:07 PM, 30 June 2022)

Integration operator from $C[a, b]$ into itself is

Select the correct option

- | | |
|----------------------------------|-------------------------|
| ☒ | linear operator. |
| ☐ | non linear operator. |
| ☐ | discontinuous operator. |
| ☐ | Zero operatotr. |

MTH641:Quiz No.2

Question # 4 of 10 (Start time: 03:21:28 PM, 30 June 2022)

Let S and T are linear operators , we have

Select the correct option



$$(ST)^{-1} = ST$$



$$(ST)^{-1} = I$$



$$(ST)^{-1} = T^{-1}S^{-1}$$



$$(ST)^{-1} = S^{-1}T^{-1}$$

Question # 2 of 10 (Start time: 03:19:49 PM, 30 June 2022)

Let $T : X \rightarrow Y$ be an invertible linear operator from X to Y , where $\dim X, \dim Y < \infty$, then

Select the correct option

- | | |
|----------------------------------|--------------------|
| ☐ | $\dim X = -\dim Y$ |
| ☐ | $\dim X > \dim Y$ |
| ☒ | $\dim X = \dim Y$ |
| ☐ | $\dim X < \dim Y$ |

Question # 10 of 10 (Start time: 10:45:23 AM, 01 July 2022)

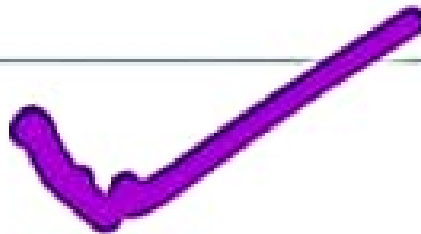
If T_1 and T_2 are linear operators from $\mathbb{R}$ into $\mathbb{R}$, defined by $T_1(x) = -x$ and $T_2(x) = x, \forall x \in \mathbb{R}$, then $(T_1 T_2)^{-1}(x) = \underline{\hspace{2cm}}$

Select the correct option

Release



$-x$



x



$\frac{1}{x}$



$-\frac{1}{x}$

If T_1 and T_2 are linear operators from $\mathbb{R}$ into $\mathbb{R}$, defined by $T_1(x) = -x$ and $T_2(x) = x, \forall x \in \mathbb{R}$, then $T_2^{-1}T_1^{-1}(x) = \underline{\hspace{2cm}}$.

Select the correct option

- | | |
|----------------------------------|----------------|
| ☐ | $-\frac{1}{x}$ |
| ☐ | x |
| ☒ | $-x$ |
| ☐ | $\frac{1}{x}$ |

If $T : \mathbb{R}^2 \rightarrow \mathbb{R}^3$ is defined by $T(x, y) = (y - x, y, x - 1)$, then the value of $T(0, 0) \implies$

Select the correct option

- | | |
|-----------------------|--------------------------|
| ☐ | T^{-1} exists |
| ☐ | T^{-1} does not exists |
| ☐ | T is linear |
| ☐ | T is not linear |
- 

Question # 3 of 10 (Start time: 03:20:28 PM, 30 June 2022)

If $T : \mathbb{R}^2 \rightarrow \mathbb{R}$ is defined by $T(x, y) = y - x$, then $T^{-1}(6) = \{(t, t - 6) : t \in \mathbb{R}\} \implies$

Select the correct option

☒	T is not one-one
☐	T is one-one

