Pen Pals

MTH641 solved quiz 3
2021

Question # 10 of 10 (Start time: 08:47:43 PM, 27 August 2021)

In an inner product space X over the field of Complex numbers, for all $x,y \in X$ and $\alpha \in F$, then $\langle x, \alpha y \rangle =$

Select the correct option

- $\alpha \langle x, y \rangle$
- $\overline{\alpha} \langle x, y \rangle$
- $\langle x, \overline{\alpha} y \rangle$
- $\langle \alpha x, y \rangle$

MTH641:Quiz-3

Question # 9 of 10 (Start time: 05:17:32 PM, 27 August 2021)

Which of the following is a condition of an inner product space?

Select the correct option

- $\langle x, x \rangle \geqslant 0$

- $\langle \alpha x + y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$
- $\langle \alpha x, y \rangle = \langle x, \alpha y \rangle$
- $\langle x, y \rangle = \overline{\langle x, y \rangle}$

Question # 10 of 10 (Start time: 02:53:07 PM, 27 August 2021) Total Marks: 1

Let $(V, \langle ., . \rangle)$ be an inner product space over a field F, then .....

Select the correct option

Reload Math Equations

- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, x \rangle , \quad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \alpha \langle x, y \rangle , \quad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle y, x \rangle , \quad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, y \rangle , \quad \forall x, y \in V, \alpha \in F.$

Click to Save Answer & Move to Next Question

Question # 6 of 10 (Start time: 04:59:45 PM, 27 August 2021)

In an Inner Product space say X, if the sequences $\{x_n\}$ and $\{y_n\}$ are Cauchy, then $\langle x_n, y_n \rangle$ is -------.

Select the correct option

- not necessarily a Cauchy Sequence in F
- necessarily a Cauchy Sequence in X
- necessarily a Cauchy Sequence in F ✓
- not necessarily a Cauchy Sequence in X

Question # 9 of 10 (Start time: 04:53:59 PM, 27 August 2021) Total Marks: 1

In an Inner Product space say X, for any sequences $\{x_n\}$ and $\{y_n\}$, if $x_n \longrightarrow x$ and $y_n \longrightarrow y$, then it ——.

Select the correct option

Reload Math Equations

- $\not\Rightarrow \langle x_n, y_n \rangle \longrightarrow \langle x, y \rangle$
- $\Longrightarrow \langle x_n, y_n \rangle = \langle x, y \rangle$
- $\Longrightarrow \langle x_n, y_n \rangle \longrightarrow \langle x, y \rangle$
- $\Longrightarrow \langle x_n, y_n \rangle \neq \langle x, y \rangle$

Click to Save Answer & Move to Next Question

Question # 5 of 10 (Start time: 04:58:53 PM, 27 August 2021)

Let $(V, \langle ., . \rangle)$ be an inner product space over a field F, then .....

Select the correct option

○	$\langle x, \alpha . y \rangle = \bar{\alpha} \langle y, x \rangle , \quad \forall x, y \in V, \alpha \in F.$
○	$\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, y \rangle , \quad \forall x, y \in V, \alpha \in F.$ ✓
○	$\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, x \rangle , \quad \forall x, y \in V, \alpha \in F.$
○	$\langle x, \alpha . y \rangle = \alpha \langle x, y \rangle , \quad \forall x, y \in V, \alpha \in F.$

Click

For all x, y belongs to an an inner product space

$$\langle \alpha x, y \rangle = \ldots\ldots\ldots\ldots$$

Select the correct option

- $\alpha \langle x, -y \rangle$
- $\alpha \langle -x, y \rangle$
- $\alpha \langle x, y \rangle$ ✓
- $\alpha \langle y, x \rangle$

MTH641:Quiz-3

Question # 4 of 10 (Start time: 04:57:58 PM, 27 August 2021)

For an inner product space defined on a real vector space $\langle x, y \rangle = \ldots\ldots$

Select the correct option

- $\langle y, x \rangle$
- $\langle y, -x \rangle$
- $\langle x, y \rangle$
- $\langle -y, x \rangle$

Question # 2 of 10 (Start time: 04:56:21 PM, 27 August 2021)

In an inner product space X over the field F,$\langle x, z\rangle = \langle y, z\rangle$

Select the correct option

○	$\nRightarrow$x=y, for all z$\in X$
○	$\Rightarrow$x=y, for some z$\in X$
○	$\Rightarrow$x$\neq$y, for all z$\in X$
○	$\Rightarrow$x$\neq$y, for all z$\in$X

MTH641:Quiz-3

Question # 1 of 10 (Start time: 04:54:41 PM, 27 August 2021)

For all x, y belongs to an an inner product space

$$\langle \alpha x, y \rangle = \ldots\ldots\ldots\ldots$$

Select the correct option

- $\alpha \langle y, x \rangle$
- $\alpha \langle -x, y \rangle$
- $\alpha \langle x, y \rangle$
- $\alpha \langle x, -y \rangle$

Question # 8 of 10 (Start time: 04:53:04 PM, 27 August 2021) Total Marks: 1

A hilbert space is a /an.....

Select the correct option

- Incomplete Inner product space
- complete norm space
- Incomplete norm space
- complete Inner product space

Click to Save Answer & Move to Next Question

Question # 7 of 10 (Start time: 04:51:47 PM, 27 August 2021) Total Marks: 1

For an element x belongs to an inner product space , $\langle x, x \rangle = \ldots\ldots\ldots$

Select the correct option

Reload Math Equations

- less than 0
- infinity
- greater than 0
- 0

Click to Save Answer & Move to Next Question

Question # 5 of 10 (Start time: 04:49:52 PM, 27 August 2021) Total Marks: 1

Which of the following is a condition of an inner product space?

Select the correct option

Reload Math Equations

- $\langle \alpha x + y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$
- $\langle x, y \rangle = \overline{\langle x, y \rangle}$
- $\langle x, x \rangle \geqslant 0$
- $\langle \alpha x, y \rangle = \langle x, \alpha y \rangle$

Click to Save Answer & Move to Next Question

Question # 4 of 10 (Start time: 04:49:05 PM, 27 August 2021) Total Marks: 1

Every complete Inner product space is ------.

Select the correct option

Reload Math Equations

- Euclidean space
- Hilbert space
- Banach space
- Complex space

Click to Save Answer & Move to Next Question

Question # 3 of 10 (Start time: 04:48:12 PM, 27 August 2021) Total Marks: 1

In an Inner Product space say X, if the sequences $\{x_n\}$ and $\{y_n\}$ are Cauchy, then $\langle x_n, y_n \rangle$ is ———.

Select the correct option

Reload Math Equations

- not necessarily a Cauchy Sequence in X
- not necessarily a Cauchy Sequence in F
- necessarily a Cauchy Sequence in F 
- necessarily a Cauchy Sequence in X

Click to Save Answer & Move to Next Question

MTH641:Quiz-3

Quiz Start Time: 04:35 PM, 27 August 2021

Question # 6 of 10 (Start time: 04:39:58 PM, 27 August 2021)

Total Marks: 1

A hilbert space is a /an.....

Select the correct option

- complete Inner product space ✔
- complete norm space
- Incomplete norm space
- Incomplete Inner product space

MTH641:Quiz-3

Quiz Start Time: 04:35 PM, 27 August 2021

Question # 8 of 10 (Start time: 04:42:23 PM, 27 August 2021)

Total Marks: 1

Every Inner Product space is a Metric Space as well

Select the correct option

Reload Math Equations

False

True

MTH641:Quiz-3

Quiz Start Time: 04:45 PM, 27 August 2021

Question # 2 of 10 (Start time: 04:46:43 PM, 27 August 2021)

Total Marks: 1

For an inner product space defined on a real vector space $\langle x, y \rangle$ =.....

Select the correct option

Reload Math Equations

- $\langle y, x \rangle$
- $\langle y, -x \rangle$
- $\langle x, y \rangle$
- $\langle -y, x \rangle$

Click to Save Answer & Move to Next Question

Question # 10 of 10 (Start time: 04:39:31 PM, 27 August 2021)

In an inner product space X over the field $F, \langle x, z\rangle = \langle y, z\rangle$

Select the correct option

- $\Rightarrow x \neq y$, for all $z \in X$
- $\Rightarrow x = y$, for some $z \in X$ 
- $\rightarrow x \neq y$, for all $z \in X$
- $\not\Rightarrow x = y$, for all $z \in X$

Click to Save An

Let $(V, \langle ., . \rangle)$ be an inner product space over a field F, then .....

Select the correct option

- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle y, x \rangle , \qquad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, y \rangle , \qquad \forall x, y \in V, \alpha \in F.$ 
- $\langle x, \alpha . y \rangle = \alpha \langle x, y \rangle , \qquad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, x \rangle , \qquad \forall x, y \in V, \alpha \in F.$

Click to Save An

MTH641 Quiz-3

Quiz Start Time: 04:35 PM, 27 August 2021

Question # 3 of 10 (Start time: 04:36:35 PM, 27 August 2021)

Total Marks: 1

In an Inner Product space say X, if the sequences $\{x_n\}$ and $\{y_n\}$ are Cauchy, then $\{x_n, y_n\}$ is ——

Select the correct option

Reload Math Equations

- not necessarily a Cauchy Sequence in X
- necessarily a Cauchy Sequence in F ✓
- necessarily a Cauchy Sequence in X
- not necessarily a Cauchy Sequence in F

Question # 6 of 10 (Start time: 04:33:29 PM, 27 August 2021)

Every inner product space is a metric space with norm given by:

Select the correct option

- $d(x,y) = \sqrt{\langle x-y, x-y \rangle}$
- $\|x-y\| = \sqrt{\langle x-y, x-y \rangle}$
- All above are equivalent
- $d(x,y) = \|x-y\|$

Question # 7 of 10 (Start time: 04:34:19 PM, 27 August 2021)

Every Inner Product space is a Metric Space as well.

Select the correct option

- True
- False

Click to Save Ans

Question # 8 of 10 (Start time: 04:35:07 PM, 27 August 2021)

Which of the following is a condition of an inner product space?

Select the correct option

- $\langle x, x \rangle \geqslant 0$
- $\langle x, y \rangle = \overline{\langle x, y \rangle}$
- $\langle \alpha x, y \rangle = \langle x, \alpha y \rangle$
- $\langle \alpha x + y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$

Click to Save Answer & Next

Question # 5 of 10 (Start time: 04:31:31 PM, 27 August 2021) Total Marks: 1

For an inner product space <x+y,z>=.....

Select the correct option

- None of these
- <x,z> - <y,z>
- <x,z> . <y,z>
- <x,z> + <y,z>

Click to Save Answer & Move to Next Question

MTH641:Quiz-3

Quiz Start Time: 04:12 PM, 27 August 2021

Question # 5 of 10 (Start time: 04:31:46 PM, 27 August 2021)

Total Marks: 1

In an inner product space X over the field of Real numbers,for all x,y and z $\backslash$in X$\backslash$ and $\alpha \in F$,then $\langle \alpha x + \beta y, z \rangle =$

Select the correct option

Reload Math Equations

- $\alpha\langle x, z\rangle + \overline{\beta}\langle y, z\rangle$
- $\alpha\langle x, z\rangle + \beta\langle y, z\rangle$

In an inner product space X over the field of Real numbers, for all $x, y \in X$ and $\alpha \in F$, then $\langle x, \alpha y \rangle =$

Select the correct option

○	$\alpha\langle x, y\rangle$
○	$\langle \alpha x, y\rangle$

Click to Save

Question # 6 of 10 (Start time: 04:17:59 PM, 27 August 2021)

Which of the following is not a condition of an inner product space?

Select the correct option

- $\langle \alpha x, y \rangle = \alpha \langle x, y \rangle$
- $\langle \alpha x + y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$
- $\langle x, x \rangle \geqslant 0$
- $\langle x, y \rangle = \overline{\langle y, x \rangle}$

Click to Save

Question # 1 of 10 (Start time: 04:25:58 PM, 27 August 2021)

Every complete inner product space is ---------.

Select the correct option

- Hilbert space
- Banach space
- Euclidean space
- Complex space

Click to Save Answer &

Question # 10 of 10 (Start time: 04:21:04 PM, 27 August 2021)

For an element x belongs to an inner product space , $\langle x, x \rangle = \ldots\ldots\ldots$

Select the correct option

- 0
- less than 0
- infinity
- greater than 0 ✓

In an inner product space X over the field F,$\langle x, z\rangle = \langle y, z\rangle$

Select the correct option

- ⇒x=y, for some z∈ X 
- ⇏x=y, for all z∈ X
- ⇒x≠y, for all z∈X
- ⇒x≠y, for all z∈ X

Question # 8 of 10 (Start time: 04:19:40 PM, 27 August 2021)

Every Inner product space is a metric space with norm given by;

Select the correct option

- $d(x, y) = \|x - y\|$
- All above are equivalent
- $d(x, y) = \sqrt{\langle x - y, x - y \rangle}$
- $\|x - y\| = \sqrt{\langle x - y, x - y \rangle}$

Question # 9 of 10 (Start time: 04:20:24 PM, 27 August 2021)

Every complete Inner product space is --------.

Select the correct option

- Euclidean space
- Hilbert space
- Complex space
- Banach space

Question # 8 of 10 (Start time: 04:21:56 PM, 27 August 2021)

Let $(V, \langle .,. \rangle)$ be an inner product space over a field F, then .....

Select the correct option

- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, x \rangle , \quad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle y, x \rangle , \quad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \alpha \langle x, y \rangle , \quad \forall x, y \in V, \alpha \in F.$
- $\langle x, \alpha . y \rangle = \bar{\alpha} \langle x, y \rangle , \quad \forall x, y \in V, \alpha \in F.$

MTH641:Quiz-3

Question # 7 of 10 (Start time: 04:21:16 PM, 27 August 2021)

For an inner product space defined on a real vector space $\langle x, y\rangle = \ldots$

Select the correct option

- $\langle y, x\rangle$
- $\langle y, -x\rangle$
- $\langle -y, x\rangle$
- $\langle x, y\rangle$

Question # 10 of 10 (Start time: 04:23:18 PM, 27 August 2021)

Which of the following is a condition of an inner product space?

Select the correct option

- $\langle \alpha x, y \rangle = \langle x, \alpha y \rangle$
- $\langle \alpha x + y, z \rangle = \langle x, z \rangle + \alpha \langle y, z \rangle$
- $\langle x, x \rangle \geq 0$
- $\langle x, y \rangle = \overline{\langle x, y \rangle}$

Question # 10 of 10 (Start time: 04:52:44 PM, 27 August 2021)

Which of the following is not a condition of an inner product space?

Select the correct option

- $(x, x) \geq 0$
- $(x, y) = \overline{(y, x)}$
- $(\alpha x, y) = \alpha (x, y)$
- $(\alpha x + y, z) = (x, z) + \alpha (y, z)$

In an inner product space X over the field of Complex numbers, for all x,y \in X\ and $\alpha \in F$, then $\langle x, \alpha y \rangle =$

Select the correct option

- $\overline{\alpha}\langle x, y \rangle$
- $\alpha\langle x, y \rangle$
- $\langle \alpha x, y \rangle$
- $\langle x, \overline{\alpha} y \rangle$

Question # 5 of 10 (Start time: 05:19:34 PM, 27 August 2021)

In an Inner Product space say X, for any sequences $\{x_n\}$ and $\{y_n\}$, if $x_n \longrightarrow x$ and $y_n \longrightarrow y$, then it --------.

Select the correct option

- $\Longrightarrow \langle x_n, y_n \rangle \longrightarrow \langle x, y \rangle$
- $\not\Rightarrow \langle x_n, y_n \rangle \longrightarrow \langle x, y \rangle$
- $\Longrightarrow \langle x_n, y_n \rangle \neq \langle x, y \rangle$
- $\Longrightarrow \langle x_n, y_n \rangle = \langle x, y \rangle$