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Question 22

If $v = (0, 2, a)$, $u = (-1, 3, -2)$ and $w = (0, -1, 3)$. Then the set $\{u, v, w\}$ linearly independent if

- ☐ A. $a = -6$
- ☐ B. $a \neq 6$
- ☒ C. $a \neq -6$
- ☐ D. $a = 6$

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» Question Completion Status:

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Question 14

The subset $S = \{x^2 + x, x - 1\}$ of P_2 forms a basis of P_2 .

- ☒ True
☐ False

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⚠ Moving to the next question prevents changes to this answer.

Question 13

If W is a subspace of the vector space M_{53} then

- ☐ A. $\dim(W) \leq 2$
- ☒ B. $\dim(W) \leq 15$
- ☐ C. $\dim(W) \leq 8$
- ☐ D. $\dim(W) = 9$

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→ ⚠ Moving to the next question prevents changes to this answer.

Question 12

If $W = \text{Span}\{(1,1), (3,0)\}$, then $\dim W =$

- ☐ A. 1
- ☐ B. 3
- ☒ C. 2
- ☐ D. 0

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Remaining Time: 1 hour, 34 minutes, 31 seconds.

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Question 8

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If the coordinate vector of $v \in \mathbb{R}^3$, with respect to the basis $B = \{(1,1,0), (1,0,1), (0,1,1)\}$ of \mathbb{R}^3 is given by $(v)_B = (1, -2, 3)$, then $v =$

- ☐ A. $(2, 2, 2)$
- ☐ B. $(1, -2, 3)$
- ☒ C. $(-1, 4, 1)$
- ☐ D. $(2, -4, 6)$

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Question 5

If $f_1(x) = \cos(3x)$, $f_2(x) = \sin(3x)$ and $f_3(x) = 2$ then the Wronskian of f_1, f_2 and f_3 is

- ☐ A. $W(x) = 54\sin^2(3x) - 54\cos^2(3x)$
- ☐ B. $W(x) = 54\sin^2(3x)$
- ☒ C. $W(x) = 54$
- ☐ D. $W(x) = 27\sin(3x) + 27\cos(3x)$

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Question 4

The basis of the subspace $W = \{(a, b, c, d) \in \mathbb{R}^4 : c = a + 2b, d = a - b\}$ of \mathbb{R}^4 is:

- ☐ A. $\{(1, 0, 1, 1), (0, 1, -1, 2)\}$
- ☐ B. $\{(1, 0, 1, 1), (0, 1, -2, 1)\}$
- ☐ C. $\{(1, 0, 1, 1), (0, 1, 1, -2)\}$
- ☒ D. $\{(1, 0, 1, 1), (0, 1, 2, -1)\}$

↳ ⚠ Moving to the next question prevents changes to this answer.