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10. Practice Exam

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10(a)

1/1 point (ungraded)

Find the value c such that the parallelogram spanned by the vectors

$$\begin{pmatrix} 1 \\ c \end{pmatrix}, \quad \begin{pmatrix} 2 \\ 5 \end{pmatrix}$$

has area 7.

$c =$ -1 ✔ **Answer:** -1

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Solution:

The area is the determinant

$$\begin{vmatrix} 1 & 2 \\ c & 5 \end{vmatrix} = 5 - 2c = 7$$

Therefore $c = -1$.

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Answers are displayed within the problem

10(b)

1/1 point (ungraded)

Find the value c such that the system of equations infinitely many solution.

$$\begin{pmatrix} 1 & 2 \\ c & 5 \end{pmatrix} \vec{x} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

$c =$ 5/2 ✔ **Answer:** 2.5

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Solution:

There will be infinitely many solution if the determinant is zero

$$\begin{vmatrix} 1 & 2 \\ c & 5 \end{vmatrix} = 5 - 2c = 0$$

Therefore $c = 2.5$.

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