

Vector Cross Product - Intro

- 1** Select the matrix that highlights the products for the indicated component of the cross product. Green marks the positive product; red marks the negative product.

- 2** Select the matrix that highlights the products for the indicated component of the cross product. Green marks the positive product; red marks the negative product.

- 3** Find the indicated component of the cross product.

A $y = u_1 v_2 - u_2 v_1$

B $y = u_1 v_3 - u_3 v_1$

C $y = -(u_1 v_3 - u_3 v_1)$

D $y = -(u_1 v_3 + u_3 v_1)$

- 4** Find the indicated component of the cross product.

A $y = m_1 n_2 - m_2 n_1$

B $y = -(m_1 n_3 - m_3 n_1)$

C $y = m_1 n_3 - m_3 n_1$

D $y = -(m_1 n_3 + m_3 n_1)$

- 5** Select the matrix that highlights the products for the indicated component of the cross product. Green marks the positive product; red marks the negative product.

- 6** Select the matrix that highlights the products for the indicated component of the cross product. Green marks the positive product; red marks the negative product.

- 7** Find the indicated component of the cross product.

A $z = 4 \cdot 3 - 2 \cdot 1 = 10$

B $z = 4 \cdot 3 + 2 \cdot 1 = 14$

C $z = 2 \cdot 1 - 4 \cdot 3 = -10$

D $z = 2 \cdot 0 - (-4) \cdot 3 = 12$

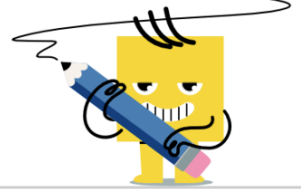
- 8** Find the indicated component of the cross product.

A $x = 2 \cdot (-2) - (-4) \cdot (-4) = -20$

B $x = 2 \cdot 1 - (-4) \cdot (-4) = -14$

C $x = (-4) \cdot (-4) + 2 \cdot 1 = 18$

D $x = (-4) \cdot (-4) - 2 \cdot 1 = 14$



Vector Cross Product - Intro

- 9** Find the cross product of the two vectors.

$$\vec{u} \times \vec{v} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ -3 & 1 & -4 \\ -3 & -4 & 3 \end{vmatrix}$$

A

$$\vec{u} \times \vec{v} = [13, -21, -15]$$

B

$$\vec{u} \times \vec{v} = [-13, 21, -15]$$

C

$$\vec{u} \times \vec{v} = [-13, 21, 15]$$

D

$$\vec{u} \times \vec{v} = [21, -13, 15]$$

- 10** Find the indicated component of the cross product.

- 11** Find the cross product of the two vectors.

$$\vec{u} = [-4, 2, -2] \quad \vec{v} = [-2, -3, -4]$$

A

$$\vec{u} \times \vec{v} = [14, 12, -16]$$

B

$$\vec{u} \times \vec{v} = [-14, -12, 16]$$

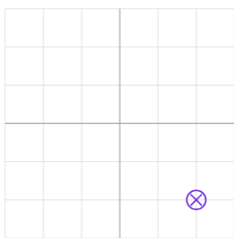
C

$$\vec{u} \times \vec{v} = [-12, -14, 16]$$

D

$$\vec{u} \times \vec{v} = [-14, -12, -16]$$

- 12** Does the cross product vector shown point into or out of the page?



A

Out of the
page

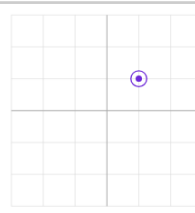
B

Into the page

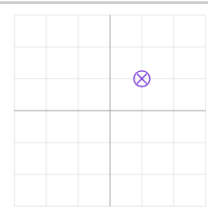
- 13** Select the grid that shows a cross product vector pointing this way.

Into the page

A



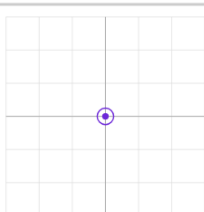
B



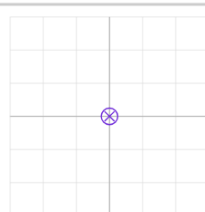
- 14** Find the direction of the cross product of the two vectors shown.

$$\vec{u} = [-3, -2, 0] \quad \vec{v} = [3, -1, 0]$$

A



B



- 15** Find the direction of the cross product of the two vectors shown.

$$\vec{u} = [2, 3, 0] \quad \vec{v} = [3, 5, 0]$$

A

Out of the page

B

Into the page