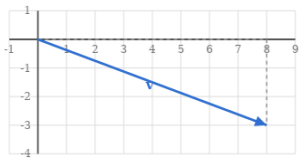
Name

Determine the dot product of two vectors

1

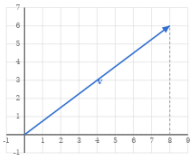
Write the magnitude of the vector as a square root expression.



A	$\lvert\vec{v}\rvert = \sqrt{8+3}$	B	$\lvert\vec{v}\rvert = \sqrt{64-9}$
C	$\lvert\vec{v}\rvert = \sqrt{64+9}$	D	$\lvert\vec{v}\rvert = 8+3$

2

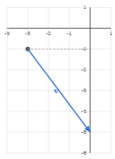
Find the magnitude of the vector.



A	$\lvert\vec{v}\rvert = 6$	B	$\lvert\vec{v}\rvert = 15$
C	$\lvert\vec{v}\rvert = 10$	D	$\lvert\vec{v}\rvert = 7$

3

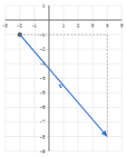
Find the magnitude of the vector.



A	$\lvert\vec{v}\rvert = 10$	B	$\lvert\vec{v}\rvert = 4$
C	$\lvert\vec{v}\rvert = 5$	D	$\lvert\vec{v}\rvert = 1$

4

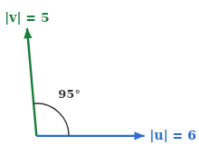
Write the magnitude of the vector as a square root expression.



A	$\lvert\vec{v}\rvert = \sqrt{6+7}$	B	$\lvert\vec{v}\rvert = \sqrt{36+49}$
C	$\lvert\vec{v}\rvert = \sqrt{36-49}$	D	$\lvert\vec{v}\rvert = 6+7$

5

The vectors have magnitudes |u| = 6 and |v| = 5 with an angle of 95° between them. Write u · v using the geometric formula.



A	$\vec{u}\cdot\vec{v} = (6)(5)\cos(95°)$	B	$\vec{u}\cdot\vec{v} = (6)+(5)\cos(95°)$
C	$\vec{u}\cdot\vec{v} = \frac{6}{5}\cos(95°)$	D	$\vec{u}\cdot\vec{v} = (6)(5)\sin(95°)$

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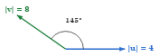
The vectors have magnitudes |u| = 4 and |v| = 8 with an angle of 145° between them. Write u · v using the geometric formula.



$\vec{u} \cdot \vec{v} = |u|\,|v| \cos(\theta)$

A	$\vec{u} \cdot \vec{v} = (4) + (8)\cos(145°)$	B	$\vec{u} \cdot \vec{v} = (4)(8)\sin(145°)$
C	$\vec{u} \cdot \vec{v} = \frac{4}{8}\cos(145°)$	D	$\vec{u} \cdot \vec{v} = (4)(8)\cos(145°)$

7

Write the dot product u · v as an algebraic expression.

$\vec{u} = \begin{bmatrix} 2 \\ -6 \end{bmatrix}, \vec{v} = \begin{bmatrix} -1 \\ 6 \end{bmatrix} \quad \vec{u} \cdot \vec{v} = u_x v_x + u_y v_y$

A

$\vec{u} \cdot \vec{v} = (2) + (-1) + (-6) + (6)$

B

$\vec{u} \cdot \vec{v} = (2)(-1) - (-6)(6)$

C

$\vec{u} \cdot \vec{v} = (2)(-1) + (-6)(6)$

D

$\vec{u} \cdot \vec{v} = (2)(6) + (-6)(-1)$

8

Find the dot product u · v.

$\vec{u} = [-2,\ 4], \vec{v} = [-5,\ 3]$

A $\vec{u} \cdot \vec{v} = 16$

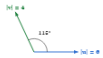
B $\vec{u} \cdot \vec{v} = 24$

C $\vec{u} \cdot \vec{v} = 22$

D $\vec{u} \cdot \vec{v} = 20$

9

The vectors have magnitudes |u| = 6 and |v| = 4 with an angle of 115° between them. Find u · v.



$\vec{u} \cdot \vec{v} = |u|\,|v| \cos(\theta)$

A	$\vec{u} \cdot \vec{v} = -5.54$	B	$\vec{u} \cdot \vec{v} = -10.14$
C	$\vec{u} \cdot \vec{v} = -3.88$	D	$\vec{u} \cdot \vec{v} = -7.12$

10

Write the dot product u · v as an algebraic expression.

$\vec{u} = [3,\ -3], \vec{v} = [4,\ 6]$

A $\vec{u} \cdot \vec{v} = (3)(4) - (-3)(6)$

B $\vec{u} \cdot \vec{v} = (3) + (4) + (-3) + (6)$

C $\vec{u} \cdot \vec{v} = (3)(4) + (-3)(6)$

D $\vec{u} \cdot \vec{v} = (3)(6) + (-3)(4)$

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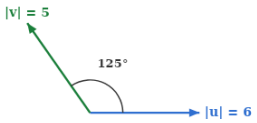
The vectors have magnitudes |u| = 6 and |v| = 5 with an angle of 125° between them. Find u · v.



A	$\vec{u} \cdot \vec{v} = -24.65$	B	$\vec{u} \cdot \vec{v} = -17.21$
C	$\vec{u} \cdot \vec{v} = -23.77$	D	$\vec{u} \cdot \vec{v} = -19.92$

12

Find the dot product u · v.

$\vec{u} = [5,\ 1], \vec{v} = [-3,\ 3] \quad \vec{u} \cdot \vec{v} = u_x v_x + u_y v_y$

A	$\vec{u} \cdot \vec{v} = -18$
B	$\vec{u} \cdot \vec{v} = -12$
C	$\vec{u} \cdot \vec{v} = -11$
D	$\vec{u} \cdot \vec{v} = -6$

13

Find the acute angle between the two planes.

$$\vec{n_1} = \begin{pmatrix} -2 \\ -2 \\ -1 \end{pmatrix} \quad \vec{n_2} = \begin{pmatrix} -1 \\ 4 \\ 4 \end{pmatrix}$$

A	$\cos^{-1}\left(\frac{10}{\sqrt{9}\sqrt{33}}\right)$	B	$\cos^{-1}\left(\frac{11}{\sqrt{9}\sqrt{33}}\right)$
C	$\sin^{-1}\left(\frac{10}{\sqrt{9}\sqrt{33}}\right)$	D	$\cos^{-1}\left(\frac{10}{\sqrt{42}}\right)$