u = <-4, -3, 4> and v = <4, 3, -7>. Find u × v.

Find k so that <-2, -6, 1> and <6, -1, k> are perpendicular.

Find the unit vector in the direction of v = <-6, 3, -2>.

Find the area of the parallelogram with sides u = <3, 4, 0> and v = <2, 0, -3>. (The area is the magnitude of u × v.)

u = <4, -3, 2> and v = <4, -1, -1>. Find u × v.

Are u = <-4, -4, 2> and v = <4, -6, 1> perpendicular? Write yes or no.

Find the distance between the points P(-2, -4, -2) and Q(-6, -12, 6).

Find the area of the parallelogram with sides u = <-1, -4, 3> and v = <-1, 4, 1>. (The area is the magnitude of u × v.)

Vectors in 3D: Dot & Cross Products · 2

ANSWER

$k = 6$

Vectors in 3D: Dot & Cross Products · 1

ANSWER

$\langle 9, -12, 0 \rangle$

Vectors in 3D: Dot & Cross Products · 4

ANSWER

17

Vectors in 3D: Dot & Cross Products · 3

ANSWER

$$\frac{6}{\langle -7,} \quad \frac{3}{7,} \quad \frac{2}{-7\rangle}$$

Vectors in 3D: Dot & Cross Products · 6

ANSWER

no

Vectors in 3D: Dot & Cross Products · 5

ANSWER

$\langle 5, 12, 8 \rangle$

Vectors in 3D: Dot & Cross Products · 8

ANSWER

18

Vectors in 3D: Dot & Cross Products · 7

ANSWER

12

u = <-6, 5, 4> and v = <5, 5, 5>. Find u × v.

Find k so that <-1, -5, -5> and <-5, -3, k> are perpendicular.

Find the unit vector in the direction of v = <0, 3, -4>.

Find the area of the parallelogram with sides u = <2, 3, 4> and v = <0, -1, 4>. (The area is the magnitude of u × v.)

u = <-7, 5, -7> and v = <5, 7, 0>. Find u × v.

Are u = <0, -2, -2> and v = <-5, 0, -1> perpendicular? Write yes or no.

Find the distance between the points P(-4, 1, -3) and Q(-10, -1, 0).

Find the area of the parallelogram with sides u = <1, -4, 3> and v = <-3, 4, 0>. (The area is the magnitude of u × v.)

Vectors in 3D: Dot & Cross Products · 10

ANSWER

$k = 4$

Vectors in 3D: Dot & Cross Products · 9

ANSWER

$\langle 5, 50, -55 \rangle$

Vectors in 3D: Dot & Cross Products · 12

ANSWER

18

Vectors in 3D: Dot & Cross Products · 11

ANSWER

$$\frac{3}{} \quad \frac{4}{}$$
$$\langle 0, 5, -5 \rangle$$

Vectors in 3D: Dot & Cross Products · 14

ANSWER

no

Vectors in 3D: Dot & Cross Products · 13

ANSWER

$\langle 49, -35, -74 \rangle$

Vectors in 3D: Dot & Cross Products · 16

ANSWER

17

Vectors in 3D: Dot & Cross Products · 15

ANSWER

7

u = <3, -3, 2> and v = <-3, 5, 0>. Find u × v.

Find k so that <1, -6, 2> and <2, 1, k> are perpendicular.

Find the unit vector in the direction of v = <2, -10, 11>.

Find the area of the parallelogram with sides u = <-4, 3, 0> and v = <-1, 4, 0>. (The area is the magnitude of u × v.)

u = <2, -1, -2> and v = <4, -4, -2>. Find u × v.

Are u = <3, -6, 3> and v = <0, -1, -2> perpendicular? Write yes or no.

Find the distance between the points P(2, -2, 4) and Q(-2, -6, 11).

Find the area of the parallelogram with sides u = <3, 4, 1> and v = <-3, 0, 1>. (The area is the magnitude of u × v.)

Vectors in 3D: Dot & Cross Products · 18

ANSWER

$k = 2$

Vectors in 3D: Dot & Cross Products · 17

ANSWER

$\langle -10, -6, 6 \rangle$

Vectors in 3D: Dot & Cross Products · 20

ANSWER

13

Vectors in 3D: Dot & Cross Products · 19

ANSWER

$$\left\langle 15, -3, \frac{11}{15} \right\rangle$$

Vectors in 3D: Dot & Cross Products · 22

ANSWER

yes

Vectors in 3D: Dot & Cross Products · 21

ANSWER

$\langle -6, -4, -4 \rangle$

Vectors in 3D: Dot & Cross Products · 24

ANSWER

14

Vectors in 3D: Dot & Cross Products · 23

ANSWER

9