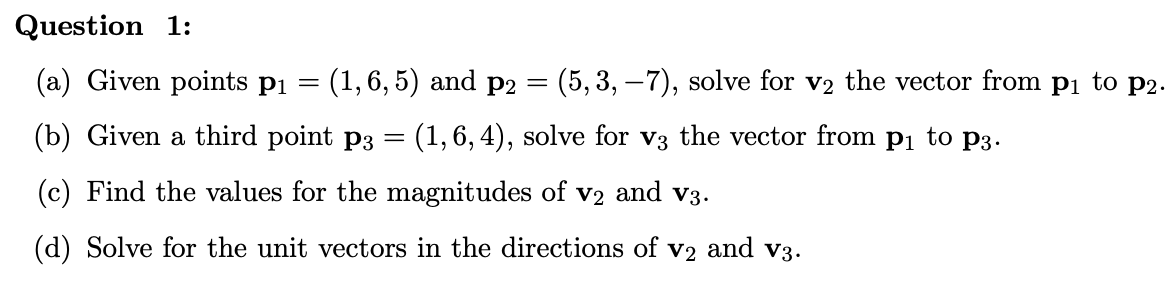
**480 PSet 1: Linear Algebra Self-Assessment**



1. My answer is :

The vector v2 from p1 to p2 is p2 - p1 = (5-1, 3-6, -7-5) = (4, -3, -12)

1. My answer is :

The vector v3 from p1 to p3 is p3 - p1 = (1-1, 6-6, 4-5) = (0, 0, -1)

1. My answer is :

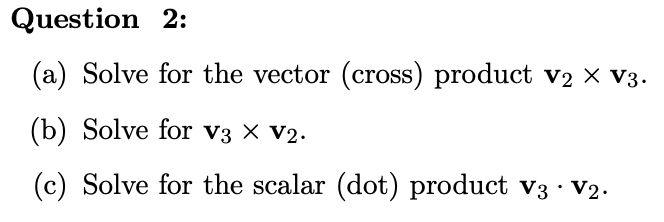
Magnitudes of v2 is

Magnitudes of v3 is

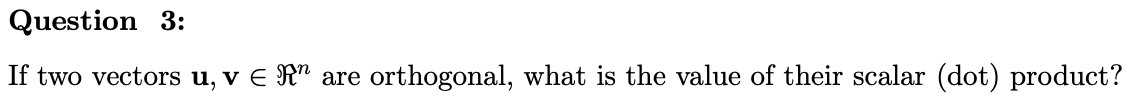
1. My answer is :

Unit vector of v2 is v2 / |v2| = (4/13, -3/13, -12/13)

Unit vector of v3 is v3 / |v3| = (0, 0, -1)

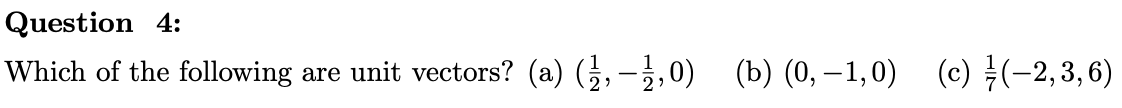


1. My answer is :
2. My answer is :
3. My answer is :



My answer is:

0, since they are orthogonal, which means that the angle between them is 90 degrees and the dot product of the vectors is zero.



My answer is:

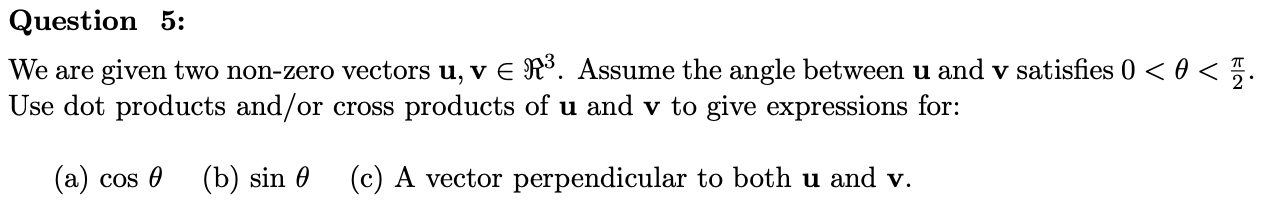
(b) and (c) are unit vectors.

For (a):

For (b):

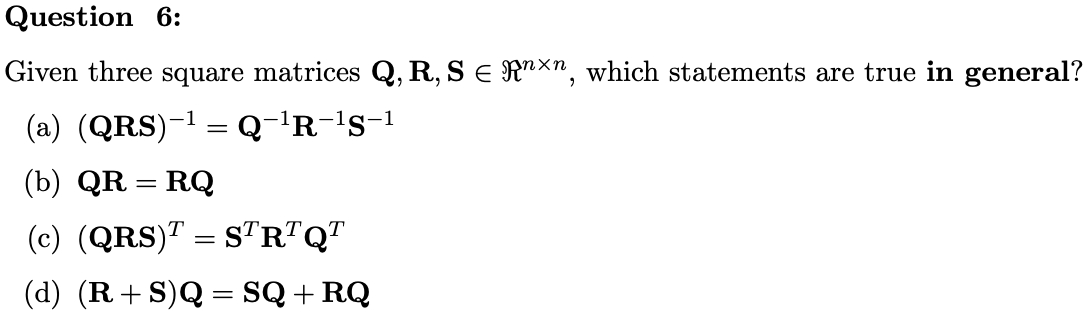
For (c):

In conclusion, (b) and (c) are unit vectors.



1. My answer is:
2. My answer is:
3. My answer is:

Since the vector resulting from the cross product u×v is a vector that is perpendicular to both u and v.



1. My answer is:

It’s false, since .

1. My answer is:

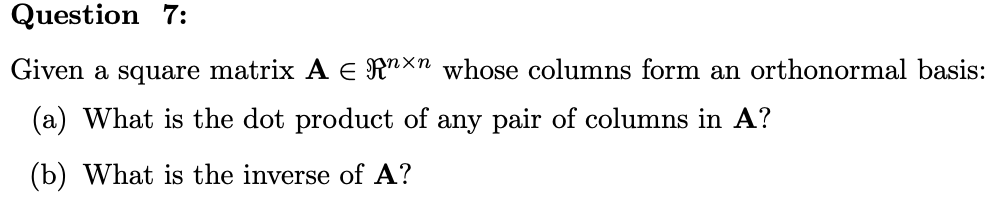
It’s false, unless they are special matrices.

1. My answer is:

It’s true.

1. My answer is:

It’s true.



1. My answer is:

It's 1, since A’s columns form an orthonormal basis so that the dot product of each pair of columns in A is 1.

1. My answer is:

Since A’s columns form an orthonormal basis,