Computer Graphics Quiz #1

Your Name: ________________________________

1. What is the dimension of the following column matrix? \((1.34, 0.0, -0.912, 8.23)^T\)
   a. 1  b. 2  c. 3  d. 4

2. Are the following two column matrices equal? \((1.0, 2.0, -1.0)^T\), \((1, 2, -1)^T\)
   a. No, because one contains ints and the other reals.  
   b. No, because a column matrix can't be equal to a row matrix.  
   c. Yes.

3. Say that point A is \(x=1, y=12\) and that point B is \(x=3, y=15\). What column matrix represents the displacement from A to B?
   a. \((2, 3)^T\)  
   b. \((-2, -3)^T\)  
   c. \((4, 27)^T\)  
   d. \((4, 3)^T\)

4. Say that point C is \(x=4, y=2, z=-3\) and that point D is \(x=8, y=7, z=4\). What column matrix represents the displacement from C to D?
   a. \((12, 9, 1)^T\)  
   b. \((4, 5, -7)^T\)  
   c. \((-4, -5, 7)^T\)  
   d. \((4, 5, 7)^T\)

5. What is the sum: \((8, 4, 6)^T + (2, -2, 9)^T\) ?
   a. \((10, 2, 15)^T\)  
   b. \((7, 6, 3)^T\)  
   c. \((8, 4, 6, 2, -2, 9)^T\)  
   d. 27

6. What is: \((7, -4, 12)^T - (-3, -2, 9)^T\) ?
   a. \((4, -6, 3)^T\)  
   b. \((-4, 2, -3)^T\)  
   c. \((10, -2, 3)^T\)  
   d. \((10, 2, -3)^T\)

7. Say that: \(a = (x, -2, 3)^T\), \(b = (4, x, z)^T\), and that \(c = (y, 0, y)^T\). What must \(x, y,\) and \(z\) be so that \(a + b + c = 0\)?
   a. \(x = 2, y = 2, z = 2\)  
   b. \(x = -2, y = 2, z = 1\)  
   c. \(x = -2, y = -2, z = -1\)  
   d. \(x = 2, y = -6, z = 3\)

8. Here is a formula, where \(u, v,\) and \(w\) are vectors: \(|u + v| \ ?\ ?\ ?\ |u| + |v|\)  
   What symbol should replace the ???
   a. \(==\)  
   b. \(=/=\)  
   c. \(<=\)  
   d. \(>=\)

9. Which ONE of the following operations is NOT possible?
   a. point + vector  
   b. vector - vector  
   c. point + point  
   d. point - point
10. What is the length of the vector represented by $(4, 4, 2)^T$?

a. 3  

b. 4  
c. 5  
d. 6