Set 12-3

pg 616 Q1-Q10

#1-9 odd

Q1 tail, head

Q2 size, orientation

Q3 head → tail

Q4 tail of V_1 to head of V_2

Q5 tail + b tail

Q6 head to head

Q7 Origin

Q8 magnitude

Q9 false

Q10 $i^2 + j^2 = 1$

c) $|\vec{a} + \vec{b}| =$

$\sqrt{11^2 + 3^2 + 2^2} = 11.58$

$|a| = \sqrt{4^2 + 2^2 + 3^2} = 5.39$

$|b| = \sqrt{7^2 + 5^2 + 1^2} = 8.66$

$|a| + |b| = 14.05$

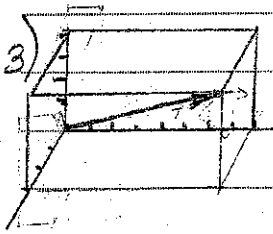
Not Equal

d) $u_b = \frac{7i - 5j + 1k}{8.66}$

$\vec{u}_b = 0.81\vec{i} - 0.58\vec{j} + 0.12\vec{k}$

$20\vec{u}_b = 16.17\vec{i} - 11.55\vec{j} + 2.31\vec{k}$

1) 

3) 

7) $R(5,6,12)$ $S(8,13,6)$

$\vec{RS} = 3\vec{i} + 7\vec{j} - 6\vec{k}$

$dist = \sqrt{3^2 + 7^2 + 6^2} = \sqrt{94}$

9) $A(9,13,-4)$ $B(3,6,-10)$

$\vec{BA} = 6\vec{i} + 7\vec{j} + 6\vec{k}$

$dist = \sqrt{6^2 + 7^2 + 6^2} = \sqrt{121} = 11$

Book wrong

72
49
121

5) $\vec{a} = 4\vec{i} + 2\vec{j} - 3\vec{k}$

$\vec{b} = 7\vec{i} - 5\vec{j} + 1\vec{k}$

a) $\vec{a} + \vec{b} = 11\vec{i} - 3\vec{j} - 2\vec{k}$

$\vec{a} - \vec{b} = -3\vec{i} + 7\vec{j} - 4\vec{k}$

$\vec{b} - \vec{a} = 3\vec{i} - 7\vec{j} + 4\vec{k}$

all are answers

b) $3\vec{a} = 12\vec{i} + 6\vec{j} - 9\vec{k}$

$6\vec{a} - 5\vec{b} = 24i + 12j - 18k$

$-[35i - 25j + 5k]$

$-11\vec{i} + 37\vec{j} - 23\vec{k}$