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Quiz 5

This quiz is graded out of ~~10~~ marks. No books, ~~calculators~~, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. Let $S = \{1,2,3,4,5\}$.

a. *(1 mark)* Give two permutations of the set S.

b. *(1 mark)* Is $(2,1,3,4,4)$ a permutation of the set S, justify.

~~b. (2 marks) The set S will has how many permutations.~~

c. *(2 marks)* Determine the parity of the permutation $(5,2,1,3,4)$ of the set S.

Question 2. Let $\mathbf{u} = (1,-2,3)$, $\mathbf{v} = (-2,0,1)$, $\mathbf{w} = (1,0,-2)$, $P_1(-2,0)$, $P_2(-1,2)$.

a. *(2 marks)* Simplify $(-2\mathbf{u}+3\mathbf{v})+3\mathbf{u}-0\mathbf{w}$.

b. *(2 marks)* Find the vector having initial point P_1 and terminal point P_2.

1a) $(2,1,3,4,5)$, $(5,1,3,2,4)$ are two possibilities

1b) No, since there is repetition.

1c) $4+1+0+0+0=5$

$\therefore (5,2,1,3,4)$ is odd

2a) $(-2(1,-2,3)+3(-2,0,1))+3(1,-2,3)-\vec{0}$

$= (-2,4,-6)+(-6,0,3)+(3,-6,9)$

$= (-5,-2,6)$

2b) $\vec{y} = \vec{P_1P_2}$

$= P_2 - P_1$

$= (-1,2)-(-2,0)$

$= (1,2)$