TSINSETA LEMARIAM SENIOR SECONDARY SCHOOL 2016 E.C

GRADE 10 PHYSICS WORKSHEET

PART I WORK OUT THE FOLLOWING QUESTIONS

1. The two sides of right angle triangle are 5cm and 12cm long, what is the length of the hypotenuse?
2. Three students, ABEL, CHALTU & CHALLA pull an object. If chaltu pulls an objects 10N force due east, Abel by a 15N force due west & challa by 7N force due east a) what is the net force acting on the object b) in what direction will the object move 3. Two forces F_1=6N East & F_2=8N north act on a body, what is the magnitude of the resultant force? 4. If the angle θ in the figure is 30° , and the hypotenuse is 8cm what is the length of side A & B ? (sin30°=0.5, cos 30°=0.866)
5. What are the x & y components F_x &F_y of a resultant force of 100N acting at an angle of 37°. (sin 37°=0.6 cos 37°=0.8)
6. The magnitude of two vectors A=5units and B=units. Find the largest and the smallest possible values for the resultant vector R=A+B. 7. The result of vector A-B is the same as A. B-A B. A+B C. -A+B D. -B+A 8. A vector drawn 20mm long represents a velocityof 30m/s how long should you draw a vector to representa velocityof 20m/s? 9. Two vectors have un equal magnitude , can their sum be zero? Say yes or No✓ 10. Two forces are acting on a body in the same direction, one of the force is three times the second force and their resultant force is is 20N, find the value of F_1 & F_2? 11. State Pythagoras theorem theoretically and mathematically?
12. Can the magnitude of a vector ever be a negative? Explain
13. If two vectors are equal in magnitude but opposite in direction what wiil be the magnitude and direction of the resultant?
14. When is the magnitude of the <u>sum and difference</u> of two non-zero vectors |A| and |B| is equal.
15. List methods that is used to add Non-parallel and Non-perpendicular vectors? 16. Two perpendicular vectors A & B are given A=10 units and |A+B|=20 17. _____ is the process of spiitting a vector in to components. 18. Calculate

the resultant displacement of a boy if he walks 500m towards East 1000m towards a) East b) West C) North

19. Two students are push a box with forces of 200N and 500N respectively, what will be the magnitude of the resultant force on the box when the students push it a) In the same direction b) In opposite direction C) perpendicular to each other

20. Two forces 20N and 30N <u>can not</u> be combined to give a resultant of A. 50N B. 20N C. 10N D. 35N
: 21. It is possible to add vector quantity to a scalar quantity ?
22 Two forces of 25N and 60N act on a body what are the minimum and maximum possible value of the resultant force?
23. If A and B are any two non-zero vectors, it is possible that A-B=B-A. : 24. Assume tha A and B have non zero magnitude. It is possible for A+B to be zero?
25. Can a component of a vector be greater than the resultant vector? 26. If vector A and B is doubled what will be the magnitude & direction of the vector? 27. Is it possible to talk about the direction of zero vector 28. Can vectors A and B having different magnitude be combined to give a zero sum?
29. Can you find a vector that has a magnitude of zero but the components that are different from zero?
30. List and explain the different types of vector ?
31. If two vectors have equal magnitude, what are the maximum and minimum magnitudes of their sum?
32. If three vectors have unequal magnitudes, can their sum be zero? Explain. 33. Vector C is 6m in the x-direction. Vector D is 8m in the y-direction. Use the parallelogram method to work out C+D? 34.A Cyclist undergoes a displacement of 250km in a direction 30° North of East. Resolve this displacement into its components 35. A boy walks 3 km due East and then 2 km due North. What is the magnitude and direction of his displacement vector?
36. A girl walks 25° North of East for 3km. How far would she have to walk due North and due East to arrive at the same location.
37. For the two vectors A and B with magnitude 6.8cm and 5.5cm determine the magnitude and direction of: a) R= A+B b) R= A-B c) R= B-A 38. Three vectors A, B & C have a magnitude and direction of 29 unit North, 16 unit East and 26 unit South, respectively, Graphically determine the resultant of these three

vectors?

39. If vx = 9.8 m/s and vy = 6.4 m/s, determine the magnitude and direction of v.

40. List 15 Examples of vector and scarar for each quantity?