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Name _____ 3rd Quarter Date _____ 2020 Subject: Physics
Revision Worksheet Grade 11 Section A Teacher's Name: Mr. Asfaw

Answer the following questions

1. Can kinetic energy be negative? Explain.

2. What can be said about the speed of a particle if the net work done on it is zero?

3. What is the net work done by a conservative force?

Work out and show your steps clearly.

4. A force of 20N is applied on a block of 4kg and displaces the block by 3m in the direction of the force applied. How much work is done if the is frictionless?
5. From Q4, how much is the network if $\mu=0.3$?
6. A force changes the speed of a body 10m/s to 20m/s in 5s. If the body has a mass of 5 kg, find the work done in 6s.

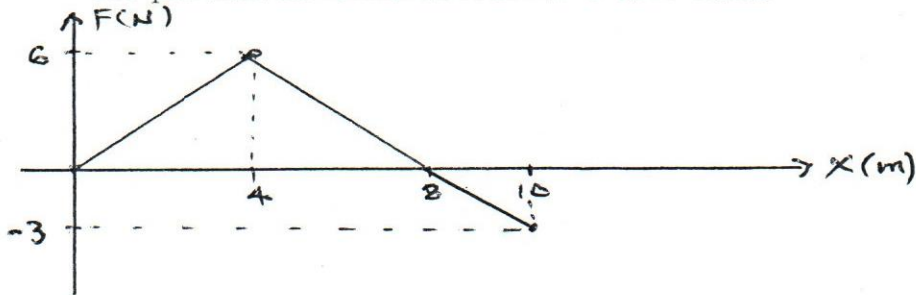
7. From Q6, find the work done in the 6th s.

8. Calculate the work done by a force given by $F=(2+x)\text{N/m}$ as x from $x=0$ to $x=6\text{m}$

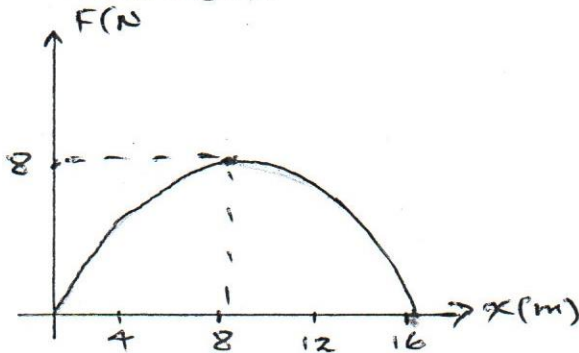
Graphically.

9. From Q8, calculate the work done analytically.

10. The force acting on a particle varies as shown. Find the work done by the particle as it moves from $x=0$ to $x=10\text{m}$.



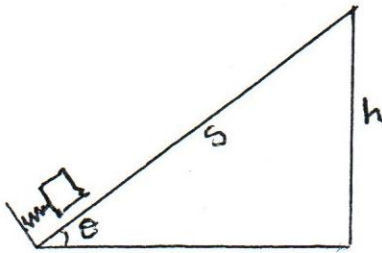
11. What is the work done in moving the object 16m . Assuming a semi-circle region.



12. By what percent does the KE of a body increased, if its speed is increased by 20%?

13. A car of mass 1500kg is travelling in a uniform velocity of 30m/s due east. The driver applies the brakes to slow down the car to a velocity of 10m/s due east. What is the work done in slowing down the car?

14. A 2kg block is placed against a spring of $K=20\text{N/cm}$ on a frictionless 30° inclined. If the spring is compressed 20cm and then released, what is the elastic potential energy of the compressed spring?



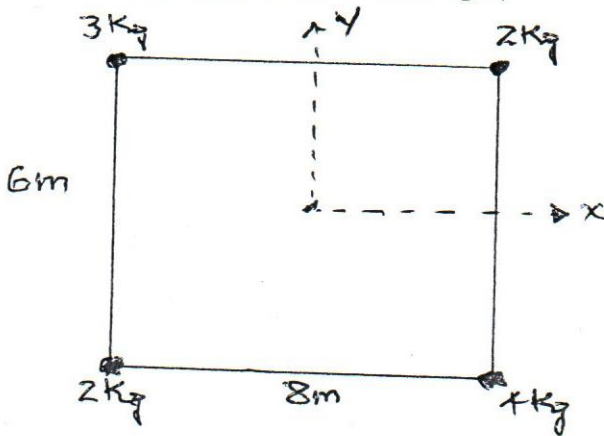
15. From Q14, what is the change in GPE of the block as it moves from the release point to its highest point of the incline?

16. From Q14, how far the block will move along the inclined plane?

17. A force of $F=(-2i+15j+6k)$ N displaces a body 10m along the y-axis. Find the work.
18. A force $F=(2i+2j)$ N displaces a particle through $S=(2i+2k)$ m in 16s. Find the power developed by the force.
19. A disk initially rotating at 120rad/s slows down uniformly at a rate of 4rad/s². How much time does it take to stop?
20. From Q19, through what angle did turn before coming to rest?
21. A body is rotated with uniform speed in a circle of radius 1m. What is the centripetal acceleration if it completes 12 revolutions in 3s?
22. A wheel initially at rest is rotated with constant angular acceleration and reaches 100rad/s in 20s. If the radius of the wheel is 0.3m, what is the tangential acceleration at the rim of the wheel?

23. Force $F=(2i-3k)N$ acts on a particle with position vector $r=(3i+4j)m$. What is the torque on the particle?

24. Four particles are connected by a rigid rod of negligible mass as shown in the figure. The system rotates Z-axis with an angular speed of 6rad/s . Calculate the moment of inertia of the system? (The origin is at the center of a rectangle)



25. From Q24, what is the rotational KE of the system?

Date of submission 27/03/2020

Parents/Guardians signature _____