

Higher 12 secondary school grade 9th physics worksheet

from unit 5 up to 8

I. write true or false for the given questions

- 1, the V.R is one means the load and effort both move the same distance.
- 2, at any given depth the pressure is equal in all direction.
- 3 decrease the distance or speed of against the applied force are one of the purposes of machines.
- 4, ideal mechanical advantage and velocity ratio have different definitions.
- 5, the wedge is a piece of material such as metal or wood thick at one edge and tapered to a thin edge at the other.
- 6, the pressure applied to an enclosed fluid is transmitted to every part of the fluid is known as Pascal's principles.
- 7, Buoyant force is a force from the water which pushes a body downwards against gravity.
- 8, is a pressure exerted by atmosphere is called gauge pressure.
- 9, heat can flow from one region to the other in four different ways.
- 10, convection is the flow of heat due to the actual movement of particles of liquids and gases.
- 11, is the lowest temperature at which particles stop moving and it is impossible to cool an object to a temperature lower than this is known as absolute zero.
- 12, thermal equilibrium is a situation where there is no net movement of the heat energy between bodies.
- 13, are waves where the direction of the disturbance and wave motion are

parallel to each other.

14, diffraction is the spreading out of a wave when it travels through a narrow gap or around sharp edges or corners.

15, constructive interference is an interference where two waves that are out of phase combine to cancel each other out.

II. Choose the best answer from the given alternatives.

1, an inclined plane 60% efficiency is used to raise a load of 6000N through a height of 6m. While sliding 20m along the incline find the effort in the system?

- A. 300N
- B. 220N
- C. 1500N
- D. 3000N

2, one of the following is an example of complex machine.

- A. Scissors
- B. Bicycles
- C. Differential pulley
- D. All of the above

3, a class of lever when the fulcrum is between the load and effort is.

- A. 1st class
- B. 2nd class
- C. 3rd class

D. A and B

4, A Jackscrew has a lever arm of 40cm and a pitch of 5mm. if the efficiency is 30% , what force F is required to lift a load $W=2700\text{N}$.

A. 19N

B. 18N

C. 151N

D. 502N

5, A steel beam is 25m long in winter at 0°C . How much does the length change in the summer at 30°C . ($\alpha = 1.2 \times 10^{-5} \text{ K}^{-1}$).

A. 6mm

B. 25mm

C. 9mm

D. 5mm

6, which one of the following is a factor on which specific heat capacity of a conductor depends.

A. Heat

B. Substance

C. Mass

D. Temperature

7, In an effort to stay awake for an all night study session, a student makes a cup of coffee using an immersion heater in of 0.3kg of water. How much heat must be

added to raise its temperature from 20°C to 80°C ($C=4200\text{J/kg}\cdot\text{K}$)

- A. $2.6 \times 10^4 \text{ J}$
- B. $2.1 \times 10^2 \text{ J}$
- C. $8.4 \times 10^4 \text{ J}$
- D. $7.56 \times 10^4 \text{ J}$

8, at what temperature is the Fahrenheit scale reading equal to twice of Celsius?

- A. 160°C
- B. 320°C
- C. 175°C
- D. 273°C

9, Atmospheric pressure increases as

- A. Latitude decrease
- B. Air density decrease
- C. Air temperature increase
- D. Altitude decrease

10, a woman weighing 600N lies on a bed of 5000 nails. What is the pressure on her body if each nail has an area of 1mm^2 ?

- A. 8.22N/mm^2
- B. 0.12N/mm^2

C. 3N/mm^2

D. 1.2N/mm^2

11, an air pressure of 101kPa supports a 76cm of mercury in a barometer column. What would be the height of the column if another liquid of density 10g/cm^3 were used ($\rho_{\text{mercury}} = 13.6\text{g/cm}^3$)

A. 55.88cm

B. 79.6cm

C. 103.36cm

D. 76cm

12, liquids and gases are collectively called fluids because

A. Both can flow

B. Both can be compressed

C. Both have no fixed volume

D. Both fill the volume of their container

13, as a wind blows across a field of grain, a wave can be seen to move across the field as the top of the crops sway back and forth. What type of wave is this?

A. Spherical

B. Electromagnetic

C. Transverse

D. Longitudinal

14, an echo was received after 4 seconds by a sonar system to find a wrecked ship on the sea bed. If the speed of sound in sea water is 1445m/s . how deep is the ship?

- A. 2890m
- B. 381.2m
- C. 5780m
- D. 1445

15, The property of a sound wave that is related to the loudness is.

- A. Wave length
- B. Pitch
- C. Intensity
- D. Speed

III. Work out the following questions in the necessary steps.

1, a simple machine is able to move a 4000N load a distance of 200cm when a force of 20N is moved through a distance of 10m. Calculate:

- A. The work input
- B. The work output
- C. The actual mechanical advantage
- D. The velocity ratio
- E. The ideal mechanical advantage
- F. The efficiency of the machine

2, a block of weight 5000N is pushed up a ramp of height 20m by a force of 2500N. Calculate the length of the ramp. Assume there is no friction

3, the efficiency of an inclined plane is 50%. If the inclined plane has a length of

16m and a height of 4m. What is its mechanical advantage?

4, a differential pulley with radii, $r = 10\text{cm}$ and $R = 15\text{cm}$ are fastened together and turn on the same axle. If a force of $F = 150\text{N}$ is applied on the rope to lift a load of $w = 7500\text{N}$, calculate:

- A. Velocity ratio
- B. Efficiency

5, a car tire makes contact with the ground on a rectangular area of 18cm by 12cm . If the mass of the car is 925kg . what pressure does the car exerts on the ground? (Take, $g = 10\text{m/s}^2$)

6, a solid block is attached to spring scale. When the block is suspended in air, the scale reads 20N , when it is completely immersed in water, the scale reads 17.7N . what is ($g = 10\text{m/s}^2$)

- A. The volume
- B. The density of the block

7, hydraulic car lifts make use of the principle of a hydraulic press in which the smaller circular piston has a diameter 8cm . what force must be applied to the smaller piston to obtain a force of 1600N at the large piston?

8, a cylindrical piston of mass m exerts a pressure p on the gas in a container. What is the radius of the cross section of the piston?

9, a sample of gas cools from -120°C to -180°C . express the change of temperature.

- A. In Kelvin
- B. In Fahrenheit scale

10, the height of a water fall is 84 m . if the potential energy of the falling water is

converted in to heat, the rise in temperature of the water is? (Take $g=10\text{m/s}^2$, $c=4200\text{J/kg.k}$)

11, if 2200J of heat is added to a 190g object its temperature increases by 12°C . what is the:

- A. Specific heat capacity
- B. Heat capacity of the object

12, suppose 63J of heat is added to a 128g piece of aluminum at 25°C . What is the final temperature of the aluminum? ($C_{\text{Al}} = 910\text{J/kg.k}$)

13, a student counts his heart beats and finds that it makes 75 beats in one minute. Calculate:

- A. The frequency of his heart beat
- B. The period of his heart beat

14, the human ear can detect sounds with frequencies between 20 Hz and 20,000 Hz. Find the largest and smallest wavelengths the ear can detect while sounds is travelling in air at 25°C ?

15, a speaker produces 440 Hz sound with a power of 1.2w. Calculate the intensity of the sound at a distance of 5m from the speaker.

Set by: physics department

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ከ9-12 ላላችሁ ተግረዎች

እንደሚታወቀው ከ2015 ዓ.ም ጀምሮ የዩኒቨርሲቲ መግቢያ ፈተና ከ9ኛ-12ኛ ክፍል ያለውን የሚያጠቃልል ነው። ይህም ተማሪዎች ላይ ጫና መፍጠሩ የማይቀር ነው። እኛም ከ2015 ዓ.ም የት/ት ዘመን ጀምሮ በነፃ Mathematics ትምህርትን ከ9ኛ-12ኛ ክፍል ላላችሁ ተማሪዎች Example & Exercise Solution ጨምሮ ቀለል ባለ እና በሚገባችሁ መንገድ ለየት ያሉ YouTube video እያዘጋጀን የምናግዛችሁ መሆኑን ስናሳውቃችሁ በታላቅ አክብሮት ነው።

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Computation የበዛበት ጊዜ ላይ ስላለን ታሪክ ለመቀየር ለስኬት ዛሬ ጀምራችሁ ተነሱ

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Thank You

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