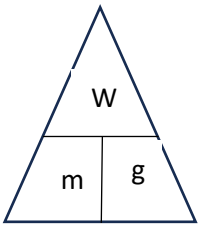
Rafay Zia Mir

1. **What is mass? Write its SI unit as well.**
   Answer. Mass is the quantity of matter in a body. SI unit is Kilogram

2. **If you go to a different planet, does the mass change?**
   Answer. No, because it is the quantity of matter.
3. **Can mass ever change?**
   Answer. Yes when the object breaks or some particles leave the surface e,g Evaporation. In Evaporation some particles leave the surface and the total mass decreases.
4. If you compress or stretch ab object, does the mass change?
   Answer. No, because the number of particles is the same after compression or stretching
5. **Write the name of the tool that is used to measure mass?**
   Answer. Balance

6. **Is mass a scalar or a vector quantity?**
   Answer. Mass is a scalar quantity because it has no direction.
7. **Write all the formulae in which mass is present.**
   Answer.
   i. F=ma
   ii. F=mg
   iii. Density=mass/Volume
   iv. Gravitational Potential Energy(GPE)=mgh
   v. Kinetic Energy(K.E)= $\frac{1}{2}mv^2$
8. **What is Weight? Write unit of weight as well.**
   Answer. Weight is the **force** of gravity of earth. Weight is measured in **Newton**
9. **Write the formula of Weight.**
   Answer. W=mg
10. **What is g in W=mg?**
    Answer. g is gravitational acceleration. It is always a constant. For earth its value is 9.8 $\frac{m}{s^2}$.
11. **Is g called gravity?**
    Answer. No, g is gravitational acceleration this is why it has the units of acceleration that is $\frac{m}{s^2}$
12. **Does the weight change when you go to a different planet?**
    Answer. Yes it will change.
13. **On a different planet, how would you know if the weight would increase or decrease?**
    Answer. If the value of g is more, the weight would be more.
14. **On what quantity does the value of g depend?**
    Answer. The value of g depends on the mass of the planet. More mass of planet means more value of g. Jupiter has the highest value of g because Jupiter has the highest mass in the solar system.
15. **Make the triangle for the formula of Weight.**
    Answer.



Rafay Zia Mir

Digitally signed by Rafay Zia Mir
DN: cn=Rafay Zia Mir gn=Rafay Zia Mir c=Saudi Arabia l=SA o=www.rafayzia.com e=rafay.mir07@gmail.com
Reason: I am the author of this document
Location:
Date: 2024-04-12 09:18+03:00

16. **If the Weight and g are given, how would you find mass? Write the formula**
    Answer. $m = \frac{W}{g}$

17. **If the weight and mass are given, how would you find the value of g?**
    Answer. $g = \frac{W}{m}$

Rafay Zia Mir

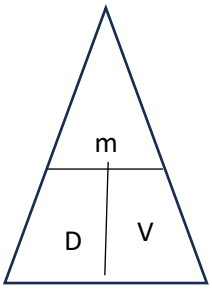
Digitally signed by Rafay Zia Mir
DN: cn=Rafay Zia Mir gn=Rafay Zia Mir c=Saudi Arabia l=SA o=www.rafayzia.com e=rafay.mir07@gmail.com
Reason: I am the author of this document
Location:
Date: 2024-04-12 09:18+03:00

18. **Write the formula of density? Also write SI unit of density**
    Answer. $Density = \frac{mass}{Volume}$

    SI unit of density $\frac{kg}{m^3}$

    Other units of density are $\frac{g}{cm^3}$ but it is not an SI unit.

19. Draw triangle for the formula of density.
    Answer.



20. **From the density formula, how would you find the mass?**
    Answer. Mass= Density × Volume
21. **From Density formula, how would you find the Volume?**
    Answer. $Volume = \frac{mass}{Density}$

22. **What is the relation between mass, volume and density?**
    Answer. $Density = \frac{mass}{Volume}$

23. **You are doing an experiment to find the density of an object. You know the mass, what other quantity you need to find?**
    Answer. Volume
24. **You are doing an experiment to fine the density of an object. You know the volume, what other quantity you need to find?**
    Answer. Mass

Rafay Zia Mir

Digitally signed by Rafay Zia Mir
DN: cn=Rafay Zia Mir gn=Rafay Zia Mir c=Saudi Arabia l=SA o=www.rafayzia.com e=rafay.mir07@gmail.com
Reason: I am the author of this document
Location:
Date: 2024-04-12 09:18+03:00

25. **What is the difference between measure and calculate?**
    Answer. In measure questions you tell the experimental techniques to find a quantity. In Calculate questions, you use a formula to find a quantity.

26. **If there is a question about density. Describe how would you measure the density of an irregularly shaped object. What you write in the answer? Usually these questions are of 4 marks.**
    Answer. You must tell three things

i. How would you measure the mass? By using Balance
ii. How would you measure Volume? Take a measuring cylinder, fill atleast half with water. Measure the volume, lets say V1. Now put the object in water, the water level would rise, lets call this volume as V2. Now do V2-V1. This is the volume of the object.
iii. How would you find density? Divide the mass by volume, we will get density

27. **How is the idea of density is related to sinking and floating?**
    Answer. If an object has more density than the liquid, the object would sink. If the object has less density than the liquid, the object would float.
28. **How can you say if something would float in water?**
    Answer. First we shall find the density of the object. If the density of the object is less than the density of water, the object will float otherwise sink.

29. **Give two commonly used units of Density.**
    Answer. $\frac{kg}{m^3}$ and $\frac{g}{cm^3}$

30. **What is the requirement to compare two densities?**
    Answer. Both of the densities should have the same units to be compared. For example you cannot compare $3\frac{kg}{m^3}$ with $3\frac{g}{cm^3}$.
31. **In exam, some questions has parts. In one part, the examiner gives you the unit of density in $\frac{g}{cm^3}$ and in the next part he gives the mass in kg and volume in m^3. When you solve it you get answer in $\frac{kg}{m^3}$. In the third part he asks you to compare them. What would you do?**
    Answer. I shall first convert the units to make them same.

32. How would you convert $\frac{g}{cm^3}$ **to** $\frac{kg}{m^3}$
    Answer. 1. First convert **g** to **kg**
    2. Then convert cm^3 to m^3

Rafay Zia Mir

Digitally signed by Rafay Zia Mir
DN: cn=Rafay Zia Mir gn=Rafay Zia Mir c=Saudi Arabia l=SA o=www.rafayzia.com e=rafay.mir07@gmail.com
Reason: I am the author of this document
Location:
Date: 2024-04-12 09:18+03:00

Convert from $\frac{g}{cm^3}$ to $\frac{kg}{m^3}$

a. 450
b. 7000
c. 2
d. 777

Convert from $\frac{kg}{m^3}$ to $\frac{g}{cm^3}$

a. 450
b. 7000
c. 2
d. 777

Rafay Zia Mir

Digitally signed by Rafay Zia Mir
DN: cn=Rafay Zia Mir gn=Rafay Zia Mir c=Saudi Arabia l=SA o=www.rafayzia.com e=rafay.mir07@gmail.com
Reason: I am the author of this document
Location:
Date: 2024-04-12 09:18+03:00

33. What is Pressure?

Answer. Force per unit area is called Pressure.

34. Write the formula of pressure.

Answer. $P = \frac{F}{A}$

35. What is the relation between Force, Pressure and Area?

Answer. $P = \frac{F}{A}$

36. Write the SI unit of Pressure.

Answer. SI Unit of Pressure is Pascal(Pa)

37. What is Pascal equal to?

Answer. $1\ Pascal = \frac{Newton}{meter^2}$

38. If the pressure is measure in Pascal, what would be the unit of Force?

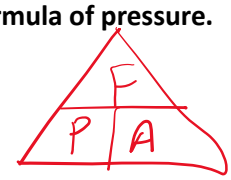
Answer. Newton

39. If the pressure is measured in Pascal, what would be the unit of Area?

Answer. m^2

40. Make a triangle for formula of pressure.

Answer.



41. How will you find the Force, if the pressure and area are given. Write the formula?

Answer. F=P×A

42. How will you find the Area, if the pressure and Force are given? Write the formula

Answer. A= $\frac{F}{P}$

43. **What will happen to the Pressure, if you increase the Force?**
    Answer. Pressure will increase

44. **What will happen to the pressure, If you increase the Area?**
    Answer. The pressure will decrease

45. **There are two boxes A and B, Both have same weight. However, box B has a bigger surface area. Which one of the boxes has greatest pressure?**
    Answer. Box A
46. **There are two boxes A and B, Both have same surface area touching the ground. However, Box A has more weight than B. Which of them has the greatest pressure?**
    Answer. Box A
47. **What is the formula of Pressure for fluids(Liquid and Gas)?**
    Answer. Pressure=$Density \times Gravitational\ Acceleration \times Height$

    P= $\rho \times g \times h$

    $P = \rho g h$

48. **If the pressure is measure in Pascal, what should be the unit of mass?**
    Answer. The mass should be in Kilogram.
49. If the pressure is measured in Pascal, what should be the unit of depth or Height?
    Answer. It should be meter.

50. **If you are given with two opposite pressures P1 and P2, how would you find the net pressure?**
    Answer. P1-P2
51. **If you are given with two same <u>direction</u> pressures P1 and P2, how would you find the net pressure?**
    Answer. P1+P2

52. **On higher altitudes, is the atmospheric pressure higher or lower?**
    Answer. Lower

53. **Near the sea level or the ground, is the atmospheric pressure higher or lower?**
    Answer. higher
54. **You have an empty bottle. You go to the top of mountain and you open the cap of bottle. The air goes inside the bottle and then you close the cap. Now, you come down to the base camp, What would happen to the bottle?**

    Answer. The bottle will be squeezed in.

55. **Where is the water pressure maximum?**

Answer. The pressure of the water is maximum near the bottom of the container.

56. **Suppose you have a container having gas in it. Do the molecules of gas exert pressure on walls of container?**
    Answer. Yes The molecules exert pressure on the walls of container.

57. **What happens to the motion of particles/molecules when you give them heat?**
    Answer. Molecules have more Kinetic Energy, therefore they move fast. Therefore, they exert more pressure on the walls of container.

58. **In the exam, if the question asks you to write the answer in terms of molecules, what would you do?**
    Answer. You will use the word molecule in your answer. You will give reasons which are related to the molecules

59. **Suppose you have a question in exam that asks you about what would happen to the <u>pressure</u> of molecules when you <u>heat</u> the molecules? What would you write?**
    Answer. i. The molecules move with more Kinetic Energy
    ii. They exert more force on the walls of container
    iii.The pressure increases because $P=\frac{F}{A}$

60. **If the question asks about why the pressure decreases, what would you write?**
    Answer. You will write the formula $P=\frac{F}{A}$. Then you should mention because the Force decreased, the pressure decreased. Remember you must write the formula

61. **What is net Force?**
    Answer. The sum of all forces is called Net Force

62. **How do you find net force if the forces are in same direction?**
    Answer. You add them

63. **How do you find net force if the forces are in opposite direction?**
    Answer. You subtract them

64. **Suppose you have two forces acting on an object. The question asks you to find the net/total pressure. Which force you would use in this case?**
    Answer. First you will find the net force, then you will use this net force in the formula $P=\frac{F}{A}$ to get the net/total pressure

65. **Suppose you are given with two forces. One force is coming from atmospheric pressure, and the other force is coming from the weight of the object. If the examiner asks you to find the pressure due to atmospheric force, what would you do?**
    Answer. We will use only the force from atmospheric pressure only in the formula $P=\frac{F}{A}$
    You have to be very careful about if the examiner is asking about the total pressure or the pressure coming from specific force.