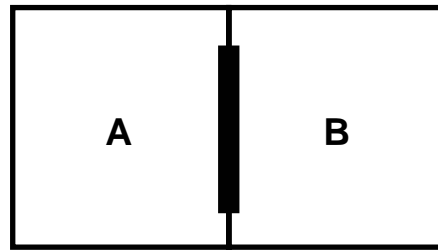


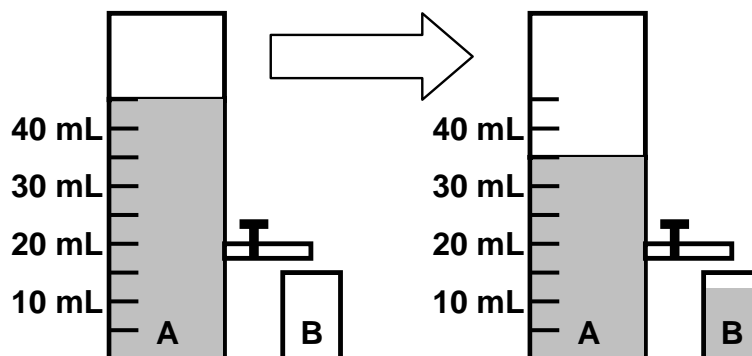
23. There are two rooms separated by a door as shown in Figure below. The pressure in the room A is 1 atmosphere and in the room B is 0.9 atmospheres. What happens when the door is opened?



(Point 2)

Answer:

24. Look at following figure. What is the volume of water in container B after the valve of container A is opened for a certain time as shown in figure?



(point 1)

Answer:

25. What is the benefit of using an antiseptic liquid or alcohol that has a low surface tension?

(point 3)

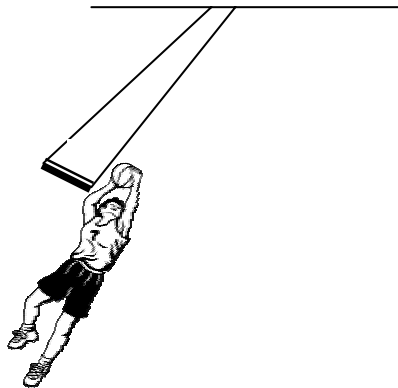
Answer:

26. Why can a mosquito rest down on water surface?

(point 2)

Answer:

27. Draw forces that work on the circus actor hanging on a rope below:



(Point 2)

Answer (you may use the figure to draw your answer):

28. Please fill in the blank with minimum 3 items respectively:

Renewable energy	Un-renewable energy

(point 3)

29. Make a list of activities (at least 3 activities) to conserve energy (environment):  
(point 1.5)

Answer:

30. Could you explain 3 negative impacts to our environment in most of crowded or dense populated cities?

(point 1.5)

Answer:

31. As Neils Armstrong reached the Moon, his weight is reduced. Why does it happen. (point 2)

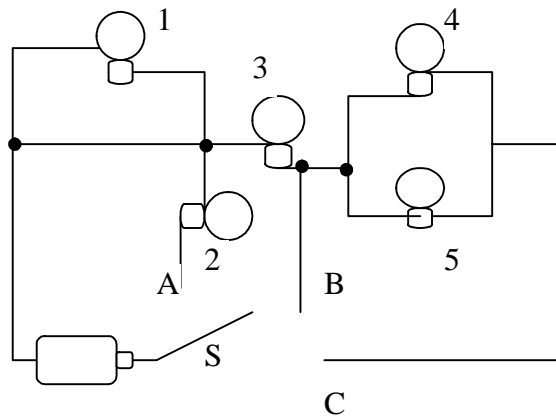
Answer:

32. A space shuttle is revolving the earth with a constant speed of 18000 km/hours in the height of 10000 km above the earth surface. The radius of the earth is approximately 6400 km. How many hours does the space shuttle need to revolve the earth one time?

(point 2)

Answer:

33. Look at the following circuit diagram, and fill the table below what happen when a certain switch is ON or OFF.



(point 3) (Write down ON or OFF)

Switch S is connected to	Lamp-1	Lamp-2	Lamp-3	Lamp-4	Lamp-5
A					
B					
C					

34. A car is travelling from city A at 08:20 pm to city B with a distance of 500 km. If the speed of the car is 80 km/hour, what time will car arrive at city B.

(point 2)

Answer:

35. Why shuttle cock always moves with the head in front.

(point 2)

Answer:

36. Dead Sea in Middle East contains concentrated salt. Your body will float on the sea surface even you have no ability to swim. On the other hand, on the common sea, your body will sink if you could not swim. Explain why?

(point 2)

Answer:

37. At the northern and southern countries we will find four seasons: spring, summer, fall, and winter. We find snow during winter, even during this period we still experience a full sunny day. Why does temperature become so cold?

(point 2)

Answer:

38. When you are sleeping on a foam mattress, you feel good, while when sleeping on a hard plate, you feel pain. Explain why?

(Point 2)

Answer:

39. Determine the average area of leaves shown in this following figure.



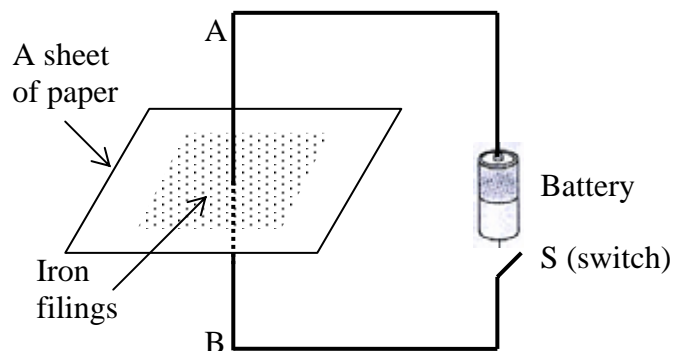
(point 2)

Answer:

40. Sound is a type of mechanic waves. Its can be reflected and absorbed by some substances. Chose which are the sound reflector and absorber among the following substances: steel, t-shirt, copper, glass, steam, and hairs.

**Answer :**

41. Suppose you have a long wire, iron filings, a sheet of paper and battery (7.5V). If you scatter iron filings on a sheet of paper around the straight wire (AB) as you can see in the following diagram, draw the position of iron filings around the straight wire (AB) when the switch S is closed (ON).

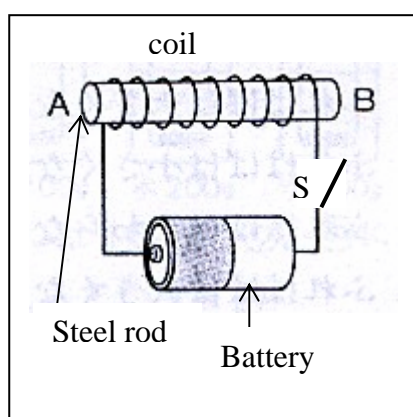


Answer:

42. The following statements explain about the climate. Chose the correct statement. You may choose more than one statement.
- During sunny days, change of the earth surface temperature is larger than the change of the air temperature, since the earth surface becomes warm easier.
  - Since sun light exposures the earth surface through the air, the air temperature raises earlier than the earth surface temperature.
  - During rainy days, change of the air temperature is smaller than that of sunny days.
  - The smallest shadow occurs at about 12 o'clock at noon, but the highest air temperature is not at that time.
  - If the shadow's change of a stick is observed from morning to evening, the shadow moves from west to east opposite the sun's position.

Answer:

43. Look at the figure below and then complete the following sentences:



If inside the coil we insert a steel rod and then the switch S is closed, electric current flows, steel rod will become a ...*(a)*....., so it can .....  
*(b)* .....a small clip. When another .....*(c)* ..... is put to point A or B of the steel rod, they will ....*(d)*....or ....*(e)* ..... each other. When switch S is open, it will back to the ...*(f)*.....

Answer:

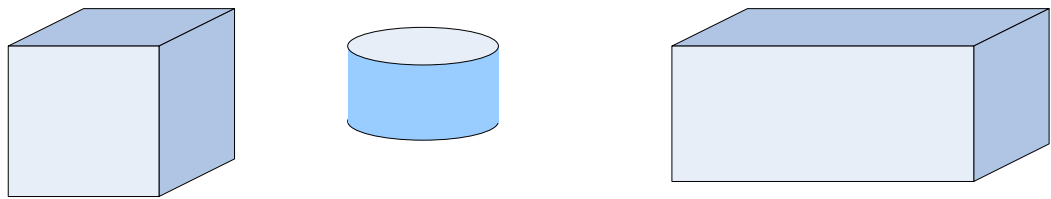
44. Some say that if you put a thermometer in boiling water at the summit of a 3,000 m mountain, the measured temperature will be less than 100° C. Is that true? Explain your answer.  
 (Point: 1)

Answer:

45. When you breathe out in a cold day, you often see mist appearing from your mouth. Please explain why it happens.  
 (Point 2)

Answer:

46. Given three objects and the list of density, please explain which one has the largest volume? Which one has the largest mass? Calculate density of each object. Can you predict what kind of matter each object is when you see the data in the next table?



List of density of matter:

Type of matter	Density
Air (27 <sup>0</sup> C)	1.2 kg/m <sup>3</sup>
Cork	250 kg/m <sup>3</sup>
Gasoline	700 kg/m <sup>3</sup>
Wood	1900 kg/m <sup>3</sup>
Aluminum	2700 kg/m <sup>3</sup>
Iron	7900 kg/m <sup>3</sup>
Mercury	13600 kg/m <sup>3</sup>
Gold	19300 kg/m <sup>3</sup>

Point: 2.5

Answer:

47. Visible lights such as sunlight and light of a bulb look white. Actually, it is a combination of many colors. Different colors can be seen by splitting their wavelengths with a prism or other disperser.

Total point: 5

- a. Please name at least five colors that comprise the white color, from the shortest to the longest wavelength.

Answer:

- b. Which one of the colors has the highest frequency?

Answer:

Cube  
2 m<sup>3</sup>  
3860 kg



c. Which one of the colors has the lowest energy?

Answer:

d. Explain why the sky is blue.

Answer:

e. If you were on the moon, or in space, what color of the sky and the Sun would you see?

Answer:

48. Find from these following devices which produce electrical energy: Generator, electric bulb, radio, dynamo, solar cell.

(point 1)

Answer:

49. Explain how the refrigerator freezes water to ice?

(point 1)

Answer:

50. A person can lift an object of 150 kg on the earth and 900 kg in the Moon. What is the gravitation on the moon?

a.  $6/10 \text{ N/kg}$

b.  $10/5 \text{ N/kg}$

c.  $5/10 \text{ N/kg}$

d.  $10/6 \text{ N/kg}$

e.  $15/5 \text{ N/kg}$

(point 1)

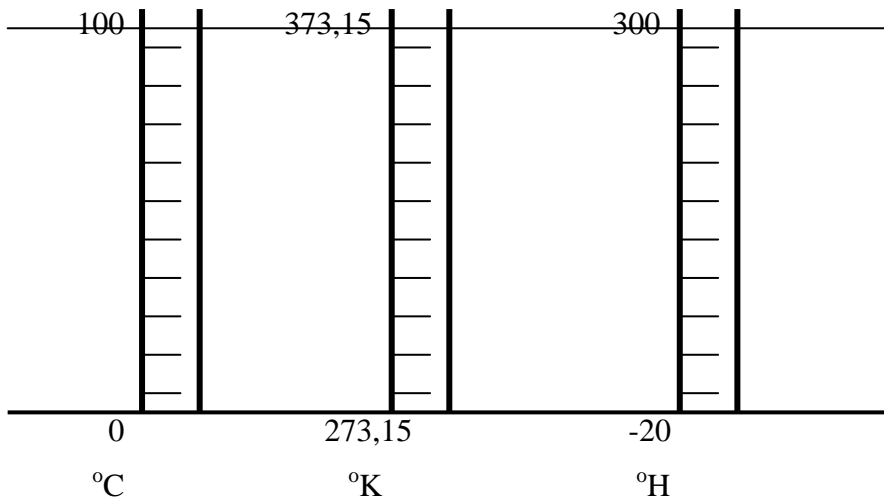
Answer :

51. After raining occasionally you see very beautiful rainbows in the sky. Explain how it can occur?

(point 2)

Answer:

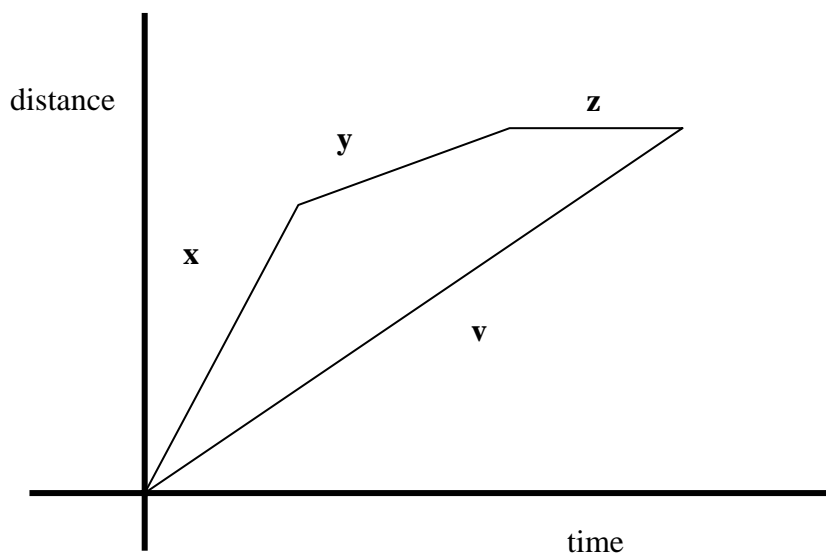
52. When the air pressure is 1 atmosphere and temperature is  $40^\circ\text{C}$ . How is the temperature in thermometer K and H?



(point 3)

Answer:

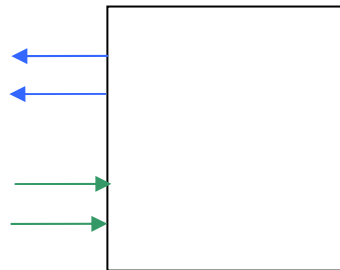
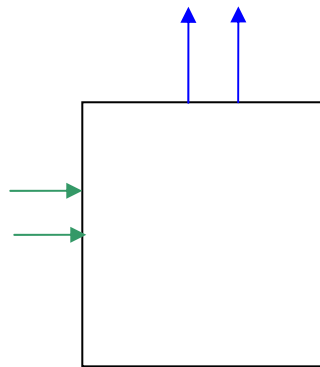
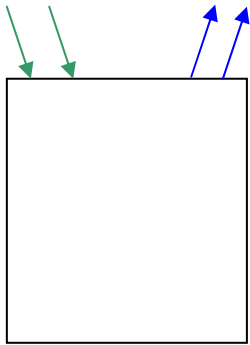
53. From this graphics, which sentence is correct ?



- a. x moves slower than y
- b. y moves faster than v
- c. x moves slower than z
- d. x moves faster than y
- e. z moves faster than v

Answer : (point 2)

54. In a box there is a mirror. Complete the beam of the light from these pictures to place mirrors.



Answer : (you may use the figures to answer)

(point 3)

55. When an object has white and red color? When an object has black color?

Answer : (point 2)