



PHYSICS

BOOKS - LAKHMIR SINGH & MANJIT KAUR

FORCE AND PRESSURE.

Exercise

1. What is the push or pull on an object known as ?

A. Motion

B. Force

C. Pressure

D. Both A and B

Answer: B



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2. Why do the shape and size of a balloon change when filled with air or water ?



3. Name the quantity whose unit is 'Newton' (N).

A. Force

B. Pressure

C. Viscosity

D. Density

Answer: A



4. When a ball is dropped from a height , its speed increase gradually. Name the force which causes this change in speed.



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5. What is the unit of force ?

A. Newton

B. Pascal

C. Newton/metre

D. metre/second

Answer: A



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6. Give one example where force changes the shape of an object.

A. Squeezing a bottle

B. Watering of plants

C. Stirring a liquid

D. All of these

Answer: A



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7. Identify the actions involved in the following situations as push or pull, or both :

a) opening a drawer.



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8. Identify the actions involved in the following situations as push or pull, or both :

b) a cricket ball hit by a batsman.



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9. Identify the actions involved in the following situations as push or pull, or both :

c) drawing a bucket of water from a well.



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10. Identify the actions involved in the following situations as push or pull, or both :

d) moving a book placed on a table .

A. push

B. pull

C. Both push and pull

D. None of the above

Answer: C



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11. Identify the actions involved in the following situations as push or pull, or both :

e) a football player taking a penalty corner.



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12. Identify the actions involved in the following situations as push or pull, or both :

f) moving a wheel barrow.



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13. Name two contact forces.



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14. Name two non - contact forces.



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15. When a plastic pen is rubbed in dry hair, it attracts tiny pieces of paper. Which force is involved in this process ?

A. Electrostatic force

B. Muscular force

C. Gravitational force

D. Frictional force

Answer: A



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16. A small device pulls iron nails from a distance. Which type of force is involved in this process?

A. Electrostatic force

B. Frictional force

C. Magnetic force

D. Gravitational force

Answer: C



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17. Which forces can be used to gather iron pins scattered on the floor ?



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18. Name the force which always opposes motion.



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19. Which forces makes a rolling ball stop on its own ?



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20. An inflated balloon was pressed against a wall after it has been rubbed with a piece of synthetic cloth. It was found that the balloon sticks to the wall. What force might be responsible for the attraction between the balloon and the wall ?

A. Gravitational force

B. Electrostatic force

C. Muscular force

D. Frictional force

Answer: B



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21. What name is given to the force acting on a unit area of an object ?



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22. Name the quantity whose one of the units is pascal (Pa) ?



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23. What conclusion do you get from the observation that a fountain of water is created at the leaking joint of pipes of the main water supply line ?



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24. What type of pressure is involved in the filling of a liquid in a syringe ?



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25. What substance present in our body balances the atmospheric pressure acting on us ?



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26. Where will the atmospheric pressure be greater - at ground level or at the top of high mountain ?



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27. Name any two devices used in everyday life which work on the existence of atmospheric pressure .



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28. If a vacuum is created between two Magdeburg hemispheres joined together, they cannot be separated easily. What presses the hemispheres together ?



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29. Why does a balloon inflate when air is blown into it ?



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30. Name the substance whose weight produces atmospheric pressure.

A. Water

B. Air

C. Both of the above

D. none of the above

Answer: B



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31. Where is the pressure greater , 10 m below the surface of the sea or 20 m below the surface of sea ?



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32. What force acting on an area of $0.5m^2$ will produce a pressure of 500 Pa ?

A. 100 N

B. 150 N

C. 200 N

D. 250 N

Answer: D



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33. Can a liquid exert pressure sideways ?



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34. State whether the following statement is true or false:

Milk is a pure substance .



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35. State whether the following statements are true or false :

b) A drinking straw works on the pressure exerted by the liquid filled in a soft drink bottle in which it is placed.



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36. Fill in the following blanks with suitable words:

a) To draw water from a well, we have to
At the rope.



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37. Fill in the following blanks with suitable words:

b) If the two force applied to an object are equal and act in opposite directions, the net force acting on the object will be



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38. Fill in the following blanks with suitable words:

c) Force could be a Or a



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39. Fill in the following blanks with suitable words:

d) Force has magnitude as well as



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40. Fill in the following blanks with suitable words:

e) A force arises due to Between two objects.



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41. Fill in the following blanks with suitable words:

f) A charged body An unchanged body towards it .



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42. Fill in the following blanks with suitable words:

g) The north pole of a magnet The north pole of another magnet.



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43. Fill in the following blanks with suitable words:

h) Force acting on a unit area is called.....



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44. Fill in the following blanks with suitable words:

i) The pressure exerted by a liquid With depth.



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45. Fill in the following blanks with suitable words:

j) A drinking straw works on the existence of Pressure.





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46. Fill in the following blanks with suitable words:

k) Atmosphere pressure With increasing height.



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47. Define 'state of motion' of an object. Name the 'agent' which can change the state of motion of an object.



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48. Give two example of situations where you push or pull to change the state of motion of objects.



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49. What is meant by saying that 'force is due to an interaction'? Give an example to illustrate your answer.



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50. In a tug of war, when the two teams are pulling the rope, a stage comes when the rope does not move to either side at all. What can you say about the magnitudes and directions of the forces being applied to the rope by the two teams at this stage ?



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51. What is force ? State the various effects of force.



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52. Give one example where force moves a stationary object.



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53. State one example where force stops a moving object.



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54. Give one example where force changes the speed of a moving object.



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55. Give one example where force changes the direction of a moving object.



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56. Why does the shape of an ointment tube change when we squeeze it ?



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57. What happens to the springs of a sofa when we sit on it ?



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58. Name the various types of forces.



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59. What is muscular force ? Give one example of muscular force.



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60. Which of the following are non - contact forces ?

Magnetic force, Frictional force, Gravitational force, Muscular force, Electrostatic force.



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61. Give two example from everyday life which show that air exerts pressure.





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62. What is rubber sucker ? How does it work ?

State any one use of a rubber sucker.



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63. Why do mountaineers usually suffer from

nose - bleeding at high altitudes ?



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64. Describe one activity to show the existence of atmospheric pressure.



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65. Explain why, water comes out more slowly from an upstairs tap than from a similar tap downstairs.



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66. What is meant by gravitational force (or force of gravity) ? Give its one example.



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67. Calculate the pressure when a force of 200 N is exerted on an area of 10 m^2



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68. Calculate the pressure when a force of 200

N is exerted on an area of 5 m^2

A. 30 Pa

B. 40 Pa

C. 50 Pa

D. 60 Pa

Answer: B



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69. Which force do the animals apply while moving, chewing and doing other activities ?



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70. Which force is responsible for raising our body hair when we try to take off a terylene or polyester shirt in The dry weather ?

- A. Magnetic force
- B. Gravitational force
- C. Electrostatic force

D. Muscular force

Answer: C



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71. Name the type of forces involved in the following :

a) A horse pulling a cart.



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72. Name the type of forces involved in the following :

b) A sticker attached to steel almirah without glue.

- A. Magnetic force
- B. Electrostatic force
- C. Gravitational force
- D. Frictional force

Answer: A



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73. Name the type of forces involved in the following :

A coin falling to the ground on slipping from hand.



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74. Name the type of forces involved in the following :

A plastic comb rubbed in dry hair picking up tiny pieces of paper.



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75. Name the type of forces involved in the following :

e) A moving boat coming to rest when rowing is stopped.



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76. Why does a sharp knife cut object more effectively than a blunt knife ?



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77. Explain why, wooden (or concrete) sleepers are kept below the railway line .



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78. Explain why a wide steel belt is provided over the wheels of an army tank.



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79. Explain why ,the tip of a sewing neddis is sharp.



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80. Explain why, snow shoes stop you from sinking into snow.



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81. Explain why, when a person stands on a cushion, the depression is much more than when he lies down on it.



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82. Explain why, porters place a thick round piece of cloth on their heads when they have to carry heavy loads.



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83. Give one practical application of magnetic force.



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84. What is meant by a contact force ? Explain with the help of an example.



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85. What is meant by a non - contact force ? Explain with the help of an example.



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86. Define frictional force (or friction) .



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87. Explain why, frictional force is said to be a contact force.



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88. Explain why magnetic force is said to be a non - contact force.



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89. Define pressure. What is the relation between pressure , force and area ? State the units in which pressure is measured.



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90. Explain why, school bags are provided with wide straps to carry them.



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91. What is meant by atmospheric pressure?

What is the cause of atmospheric pressure ?



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92. Why are our bodies not crushed by the

large pressure exerted by the atmosphere ?



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93. Explain why , atmospheric pressure decreases as we go higher up above the earth's surface.



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94. How does the pressure of a liquid depend on its depth ? Draw a labelled diagram to show that the pressure of a liquid (say , water) depends on its depth.



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95. Explain why, the walls of a dam are thicker near the bottom than at the top .



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96. Which of the following is not an example of muscular force ?

A. a porter carrying a load on a wheel-
barrow

B. an apple falling from a tree

C. a child riding a bicycle

D. a person drawing water from a well

Answer: B



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97. Which of the following is not an example of the force of gravity ?

A. a leaf falling from a tree

B. a boy pushing a cart on a level plane

C. a diver jumping into a swimming pool

D. a stone falling from the top of a cliff.

Answer: B



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98. When we press the bulb of a dropper with its nozzle kept in water, air in the dropper is seen to escape in the form of bubbles. Once we release the pressure on the bulb , water

gets filled in the dropper. The rise of water in the dropper is due to :

- A. Pressure of water
- B. gravity of the earth
- C. shape of rubber bulb
- D. atmospheric pressure

Answer: D



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99. A rectangular wooden block has length, breadth and height of 50 cm, 25 cm, and 10 cm, respectively. This wooden block is kept on ground in three different ways, turn by turn. Which of the following is the correct statement about the pressure exerted by this block on the ground?

A. the maximum pressure is exerted when the length and breadth form the base.

B. the maximum pressure is exerted when length and height form the base

C. the maximum pressure is exerted when breadth and height form the base.

D. the minimum pressure is exerted when length and height form the base.

Answer: C



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100. Which of the following are contact forces

?

A. Friction B. Gravitational force C. Magnetic

force D. Muscular force

A. A and B

B. B and C

C. A and D

D. B and D

Answer: C



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101. If we release a magnet held in our hand, it falls to the ground. The force responsible for this is :

- A. muscular force
- B. magnetic force
- C. electrostatic force
- D. gravitational force

Answer: D





102. Which of the following force is utilised in reducing air pollution by removing dust, soot and fly - ash particles from the smoke coming out of chimneys of factories ?

- A. magnetic force
- B. gravitational force
- C. electrostatic force
- D. frictional force

Answer: C



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103. The same force F acts on four different objects having the areas given below, one by one. In which case the pressure exerted will be the maximum ?

A. 20 m^2

B. 50 m^2

C. 10 m^2

D. 100 m^2

Answer: C



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104. Which of the following represent correct values for the normal atmospheric pressure ?

A. 101.3 kilopascals B. 76 mm of mercury C. 101.3 pascals D. 76 cm of mercury.

A. A and B

B. B and C

C. A and D

D. B and D

Answer: C



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105. Which of the following does not work on the existence of atmospheric pressure ?

- A. Rise of iodine solution in the glass tube of dropper
- B. Rise of cold drink in a long plastic straw
- C. Sticking of suction hook on the wall of a room
- D. rise of mercury in glass tube of the thermometer

Answer: D



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106. The magnitude of force is expressed in the unit of force called:

A. Pascal

B. kelvin

C. Newton

D. magdeburg

Answer: C



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107. Which of the following change appreciably when a batsman hits a moving cricket ball ?

A. Shape B. Direction C. Size D. speed

A. A and B

B. B and C

C. A and C

D. B and D

Answer: D



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108. Which of the following is not an effect of force ?

A. a force can change the speed of a moving object

B. a force can change the direction of a moving objective

C. a force can change the composition of a moving object.

D. a force can change the shape and size of an object.

Answer: C



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109. Which of the following is not a non - contact force ?

A. electrostatic force

B. gravitational force

C. frictional force

D. magnetic force

Answer: C



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110. Which of the following scientists gave the idea of the existence of gravitational force ?

A. Einstein

B. James Watt

C. Faraday

D. Newton

Answer: D



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111. Some mustard oil is kept in a beaker. It will exert pressure :

A. downwards only

B. sideways only

C. upwards only

D. in all directions

Answer: D



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112. A pressure of 10 kPa acts on an area of 0.3 m^2 . The force acting on the area will be :

A. 3000 N

B. 30 N

C. 3 N

D. 300 N

Answer: A



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113. The magnitude of atmospheric pressure is equal to the pressure exerted by a :

A. 76 mm tall column of mercury

B. 760 mm tall column of water

C. 76 cm tall column of mercury

D. 760 cm tall column of mercury.

Answer: C



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114. The atmospheric pressure is usually measured in the unit of :

A. newtons per square metre

B. pascal

C. cm of mercury

D. mm of mercury

Answer: D



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115. When a force of 5 N acts on a surface, it produces a pressure of 500 Pa. The area of surface then must be :

A. 10 cm^2

B. 50 cm^2

C. 100 cm^2

D. 0.01 cm^2

Answer: C



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116. Two tiny holes are made in a plastic bucket, one near the middle part and the other just above bottom. When this bucket is filled with water, the water rushes out from the bottom hole much faster than from the upper hole. What conclusion do you get from this observation ?



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117. What is common in the working of the devices such as drinking straw, syringe , a dropper and a rubber sucker ?



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118. A rocket has been fired upwards to launch a satellite in its orbit. Name the two forces acting on the rocket immediately after leaving the launching pad





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119. One student says that water exerts pressure on the bottom of the bucket but another student says that water exerts pressure on the sides of the bucket. What would you like to say?



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120. Name the forces acting on a plastic bucket containing water held above ground

level in your hand. Discuss why the forces acting on the bucket do not bring a change in its state of motion.



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