**CH 4 ASSESSMENT**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. An average shoe distributes the weight of a person over 20 square inches. How much force per square inch does a 100-pound person apply to the floor when wearing shoes?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 5 pounds per square inch | c. | 40 pounds per square inch |
| b. | 50 pounds per square inch | d. | 400 pounds per square inch |

\_\_\_\_ 2. A high-heeled shoe has a heel that is only 0.25 square inch. How much force per square inch does a 100-pound person apply to the floor through the heel of her shoe?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 5 pounds per square inch | c. | 40 pounds per square inch |
| b. | 50 pounds per square inch | d. | 400 pounds per square inch |

\_\_\_\_ 3. With an increase in altitude, the pressure of the atmosphere \_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increases | c. | may increase or decrease |
| b. | remains constant | d. | decreases |

\_\_\_\_ 4. Pressure applied by a fluid \_\_\_\_\_ with depth.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increases | c. | may increase or decrease |
| b. | remains constant | d. | decreases |

\_\_\_\_ 5. The average atmospheric pressure at sea level is \_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 100 Pa | c. | 10,000 Pa |
| b. | 1000 Pa | d. | 100,000 Pa |

\_\_\_\_ 6. A cube has a side of 5 cm. It has a mass of 250 grams. The density of the cube is \_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 40 g/cm3 | c. | 50 g/cm3 |
| b. | 1.0 g/cm3 | d. | 2.0 g/cm3 |

\_\_\_\_ 7. The buoyant force on an object is dependent on \_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the object’s density | c. | the volume of the object |
| b. | the mass of the object | d. | the shape of the object |

\_\_\_\_ 8. The buoyant force on an object is in the \_\_\_\_\_ direction.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | upward | c. | sideways |
| b. | downward | d. | backwards |

\_\_\_\_ 9. According to the Archimedes’ principle, the buoyant force on an object is equal to the \_\_\_\_\_ of the fluid that the object displaces.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | mass | c. | volume |
| b. | weight | d. | density |

\_\_\_\_ 10. What is the buoyant force on you if you displace 350 N of water as you dive under?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3.5 N | c. | 350 N |
| b. | 35 N | d. | 3500 N |

\_\_\_\_ 11. The buoyant force on a diver \_\_\_\_\_ as the diver swims deeper.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increases | c. | remains constant |
| b. | decreases | d. | varies |

\_\_\_\_ 12. Two bricks are the same size. One is made of foam and one is made of stone. They are set in a tank of water. What will happen?

|  |  |
| --- | --- |
| a. | Both bricks will float. |
| b. | Both bricks will sink. |
| c. | The foam brick will sink and the stone brick will float. |
| d. | The foam brick will float and the stone brick will sink. |

\_\_\_\_ 13. How does the buoyant force of helium in a freshly inflated balloon compare to the weight of the balloon?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | greater than | c. | same as |
| b. | less than | d. | varies |

\_\_\_\_ 14. Fred is using two different straws to drink his juice. Straw A is larger than Straw B. Which of the following is more likely?

|  |  |
| --- | --- |
| a. | Juice will flow more slowly in Straw A. |
| b. | Juice will flow more slowly in Straw B. |
| c. | Juice flows at the same rate through both. |
| d. | None of the above. |

\_\_\_\_ 15. An airplane wing is given lift because the shape causes air to move more quickly over the top of the wing. This is an example of which principle?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Archimedes’ | c. | Galileo’s |
| b. | Bernoulli’s | d. | Pascal’s |

\_\_\_\_ 16. The amount of drag force on an object depends on all of the following except \_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the surface area of the object | c. | the color of the object |
| b. | the speed of the object | d. | the density of the surrounding fluid |

\_\_\_\_ 17. 50 mL of soda in a soda can exerts \_\_\_\_ 50 mL of soda in a 1L bottle.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | more pressure than | c. | the same pressure as |
| b. | less pressure than | d. | can't tell |

\_\_\_\_ 18. As an object sinks in a fluid, the buoyant force \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increases | c. | remains the same |
| b. | decrease | d. | depends on the shape |

\_\_\_\_ 19. If an object sinks in a fluid, the buoyant force is \_\_\_\_ the weight of the object.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | greater than | c. | the same as |
| b. | less than | d. | doesn't apply |

\_\_\_\_ 20. According to Archimedes, the buoyant force on an object is equal to \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the weight of the object | c. | the density of the fluid |
| b. | the fluid pressure on the object | d. | the weight of the fluid displaced |

\_\_\_\_ 21. If you squeeze the bottom of a closed tube of toothpaste, the pressure is increased \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | on the bottom of the tube | c. | on the sides of the tube |
| b. | on the top of the tube | d. | everywhere in the tube |

\_\_\_\_ 22. In a hydraulic system, the force exerted on the large piston is \_\_\_\_ the force exerted on the small piston.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | greater than | c. | the same as |
| b. | less than | d. | not related to |

\_\_\_\_ 23. In a hydraulic system, the force exerted on the large piston is \_\_\_\_ the force exerted on the small piston.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | greater than | c. | the same as |
| b. | less than | d. | not related to |

\_\_\_\_ 24. A hydraulic system is used to \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increase force | c. | increase pressure |
| b. | decrease pressure | d. | increase distance |

\_\_\_\_ 25. As the speed of a fluid increases, \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the pressure decreases | c. | the force decreases |
| b. | the pressure increases | d. | the volume decreases |