

PRACTICE TEST
for
MECHANICAL CONCEPTS

THIS TEST MIMICS THE STYLE OF TEST FOR MECHANICAL CONCEPTS USED BY
THE PLANT OPERATOR SELECTION SYSTEM (POSS).

PRACTICE for MECHANICAL CONCEPTS

The Plant Operator Selection System (POSS) includes a test for Mechanical Concepts. Mechanical concepts are seen in everyday life, can be quite simple, and yet are actually founded on the principles of physics, material properties and basic electrical properties. This test gages your ability to draw appropriate conclusions regarding mechanical principles.

To help you prepare, a practice test follows with 26 different scenarios. Each scenario gives you a picture to illustrate a particular situation. For each situation, there will be one correct answer out the three possible answers shown. This practice test helps you to practice determining the appropriate outcome for each situation, and within a suggested time limit.

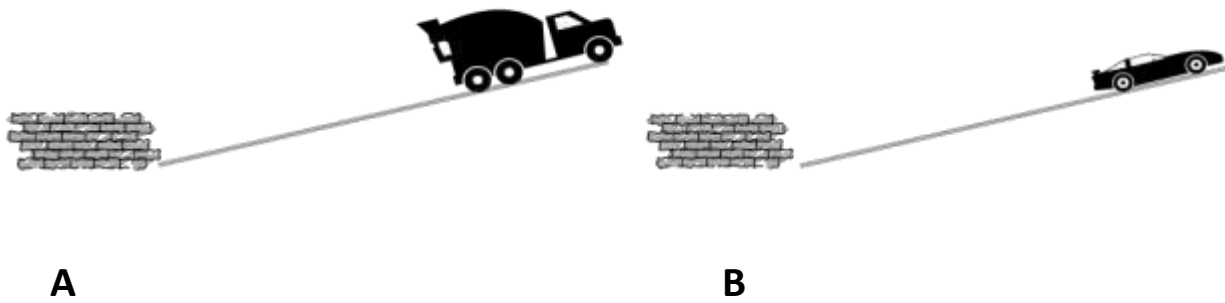
The questions you answer will be multiple-choice, A, B or C. The correct answer depends upon your accurate determination of the outcome posed by the situation. Set a timer for 13 minutes. Carefully consider each situational problem for the outcome that will occur. Select the appropriate answer on the answer sheet by completely filling in the circle your choice of A, B, or C. You should be able to answer all 26 questions within the 13-minute time limit.

Practicing by taking this test will familiarize you with the style of the real selection test. To create conditions most like a real test:

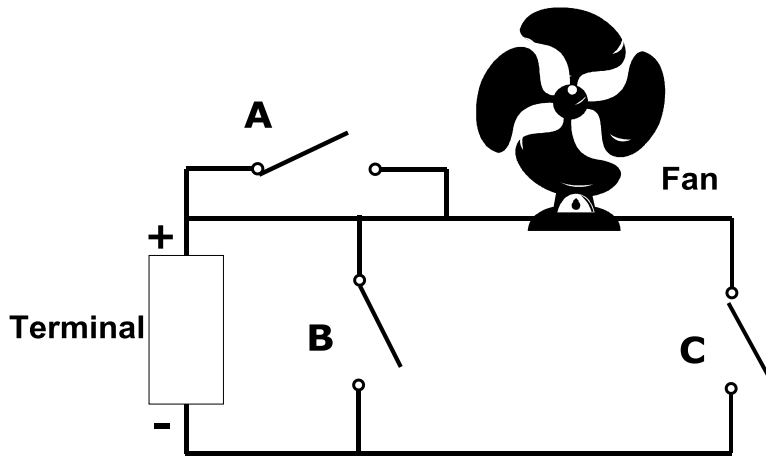
- Practice by completing all 26 test questions
- Be sure to set a timer before beginning each part
- Do not look at the answers that follow at the end until you have completed all the test questions

MECHANICAL CONCEPTS PRACTICE TEST

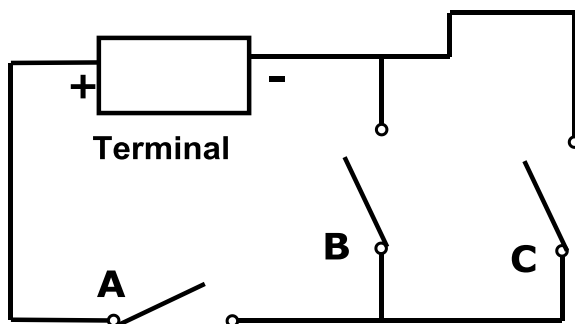
1. If the vehicle's brakes fail simultaneously, which vehicle will hit the brick wall with greater force? (If equal, mark C.)



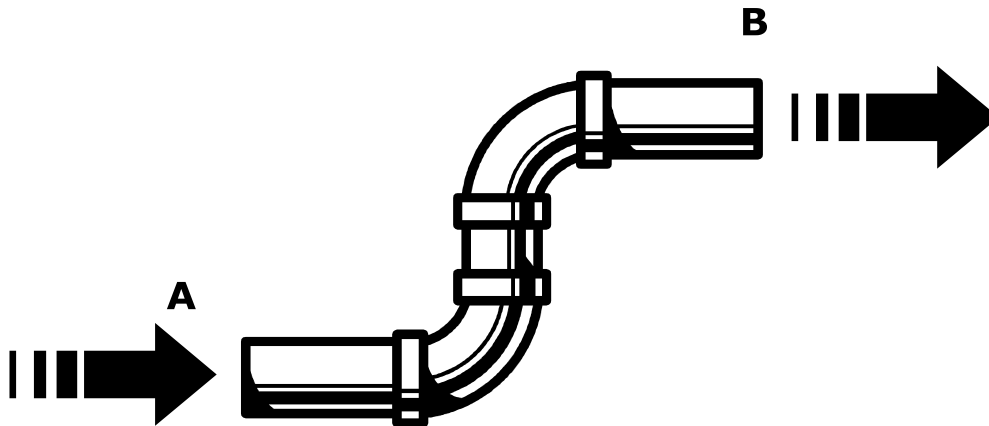
2. Which switch (A, B, or C) should be closed for the fan to operate?



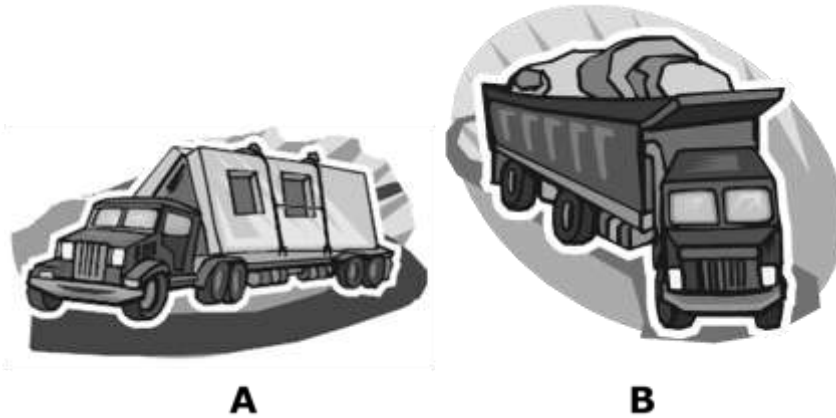
3. Which of the three switches (A, B, or C), if broken and cannot be closed, will prevent the flow of electricity in the terminal?



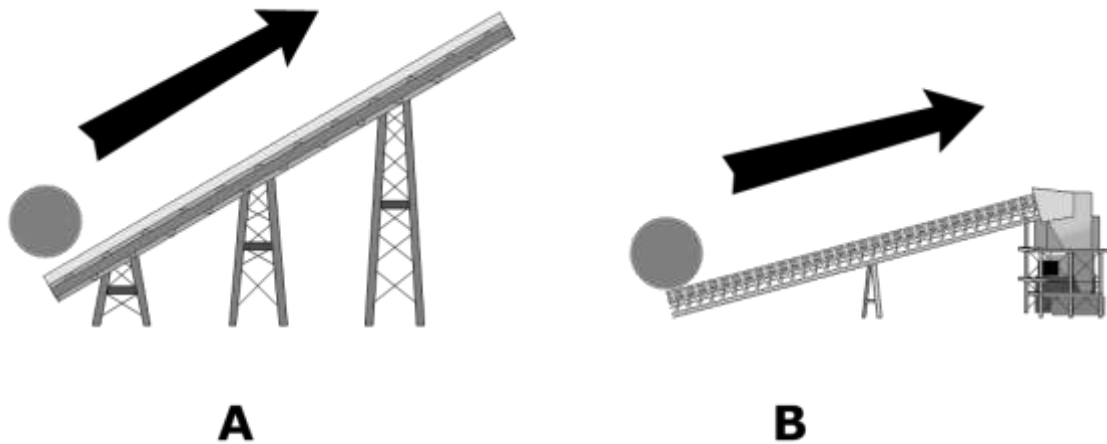
4. Water enters the pipe at A and exits the pipe at B. At which location is the water moving at greater velocity? (If equal, mark C.)



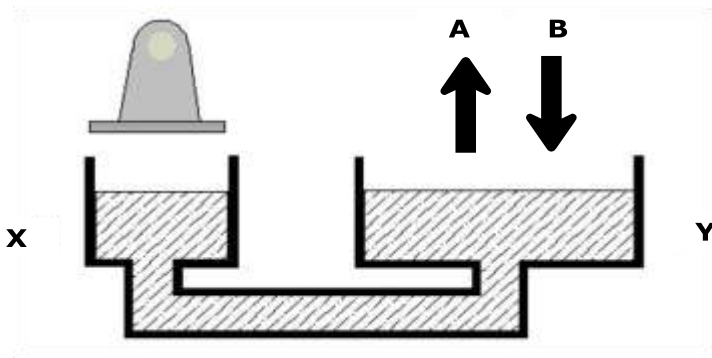
5. Two trucks of equal length carry equal weight loads. The load on Truck A is three feet higher than the load on Truck B. Which truck will require a greater turning radius to ensure it does not tip over during the turn? (If equal, mark C.)



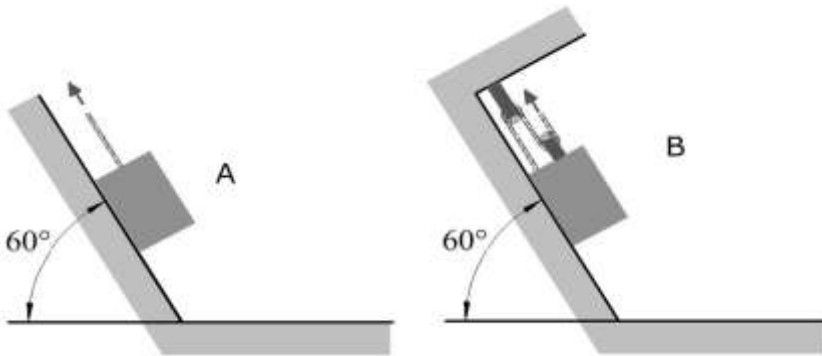
6. Each conveyor belt moves the same load from bottom to top for a total distance of 50 feet. If each conveyor begins at the same time and its load arrives at the top at the same time, then which conveyor belt requires the bigger motor? (If equal, mark C.)



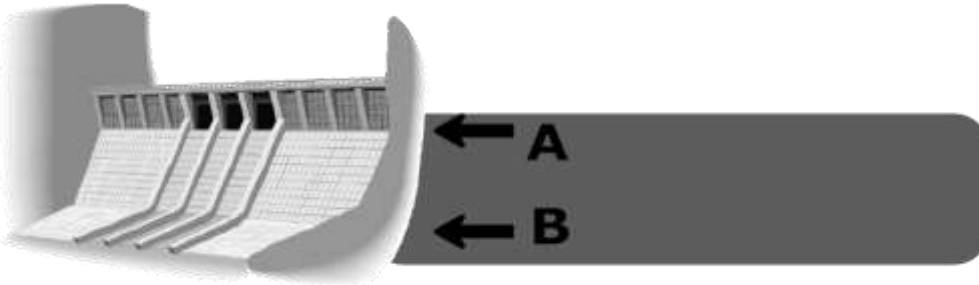
7. As the weight compresses on the surface of the fluid on the left (at X), will the level of the fluid in the right tank (Y) move up (A) or down (B) or stay constant level (C)?



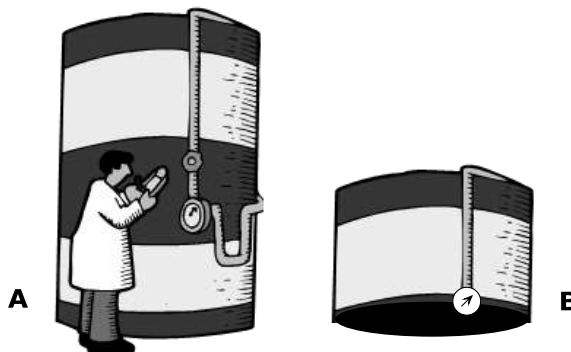
8. Which 25-pound load (A or B) has the greatest force applied to it to keep the load in its current position? (If equal, mark C.)



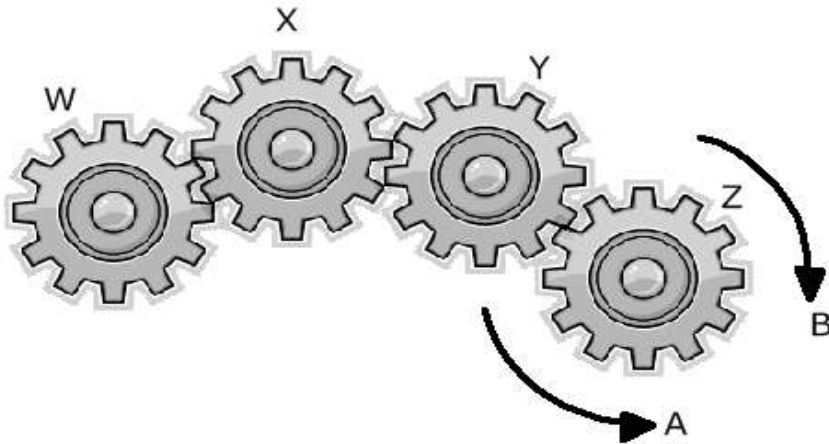
9. In the picture of the dam shown below, will the force of the water on the dam be greater at A or B? (If equal, mark C.)



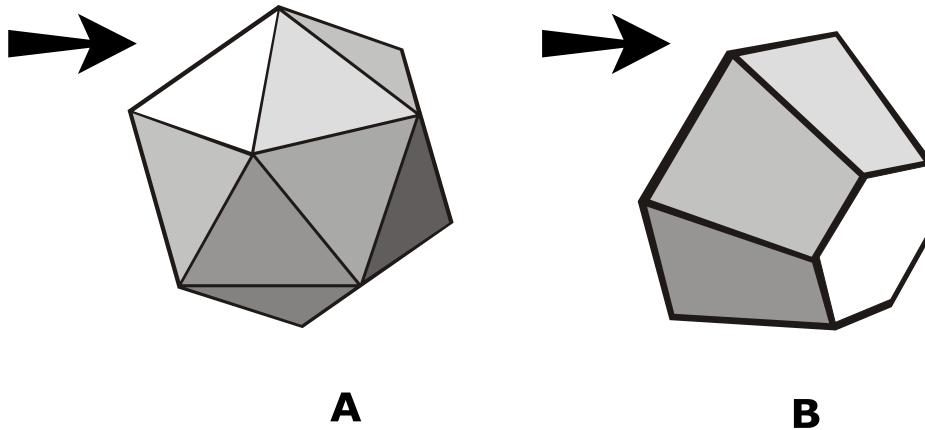
10. Both tanks contain the same gas that is under pressure. Tank A has approximately twice the volume of Tank B. If both tanks show the same pressure reading, which tank contains a greater quantity of the gas?



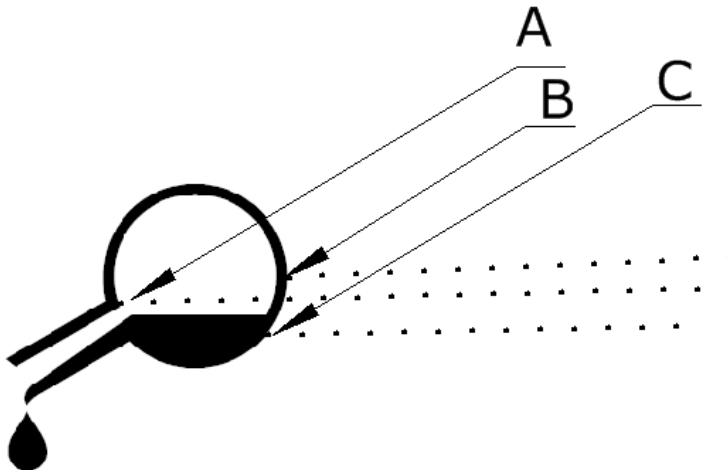
11. When the gear W moves clockwise, will gear Z move in direction A or B? (If no movement, mark C.)



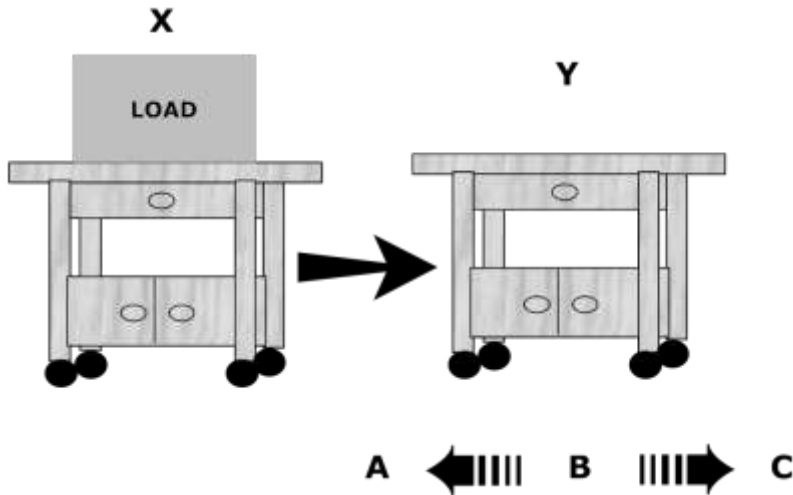
12. Object A and Object B are both given a push measuring the same force. Which object is more likely to travel further (A or B) along a flat surface? (If equal, mark C)



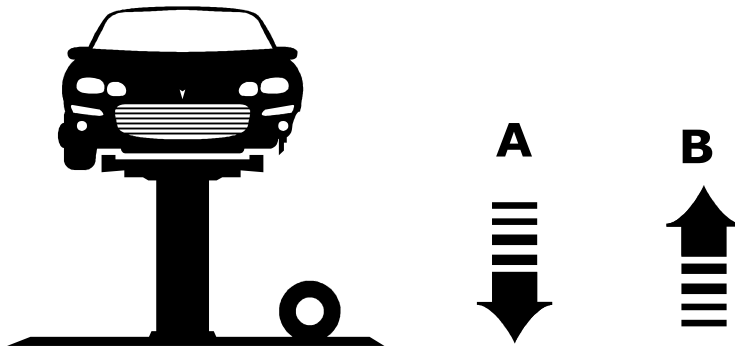
13. The beaker shown below has fallen on its side. At what point, (A, B, or C) will the liquid no longer drain out of the spout?



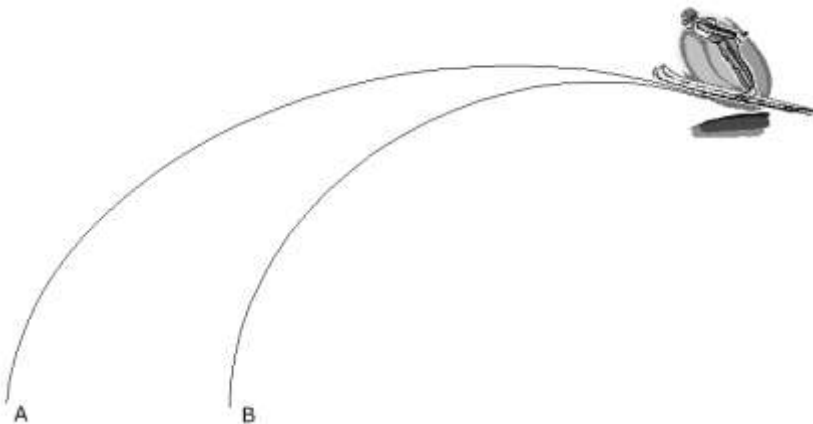
14. The carts X and Y have the same mass. When a load is placed upon cart X and it is then pushed into cart Y, will cart Y travel leftward (A), nowhere (B), or rightward (C)?



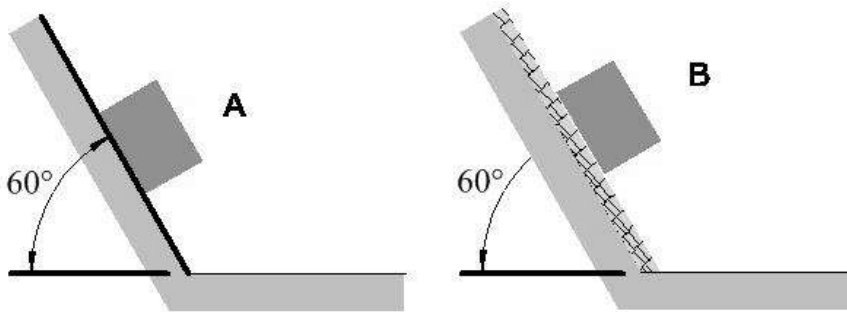
15. A hydraulic lift is used to raise the car to change its tire. If the hydraulic pressure in the lift begins to lower, will the lift move in direction A or B? (If equal, mark C.)



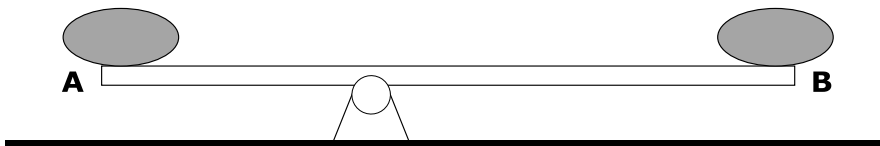
16. When the skier increases his speed at the jump off point, will he more likely increase his overall jump distance (A) or decrease his overall jump distance (B)? (If equal, mark C.)



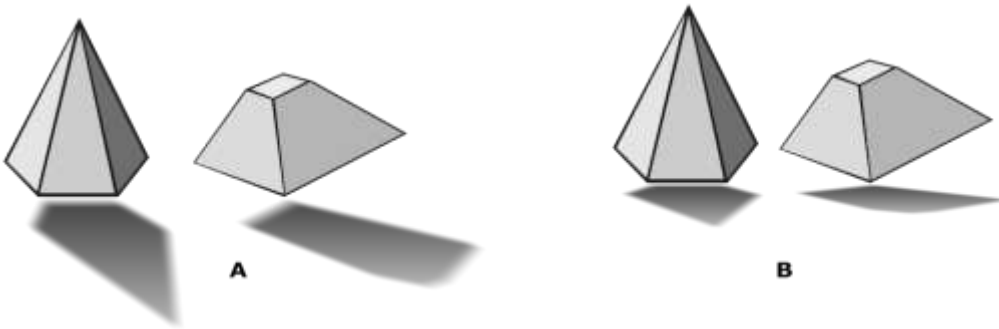
17. Box A and Box B have the same mass. Both are placed upon an incline of 60 degrees and released at the same time. The surface beneath Box A is glass. The surface beneath Box B is cobblestone. Will Box A or B reach the bottom first? (If equal, mark C.)



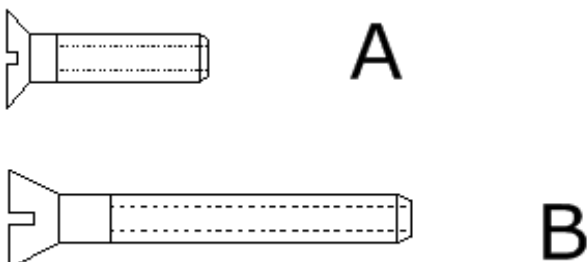
18. The mass applied at point A is equal to the mass applied at point B. Which side, (A or B) will move lower? (If equal, mark C.)



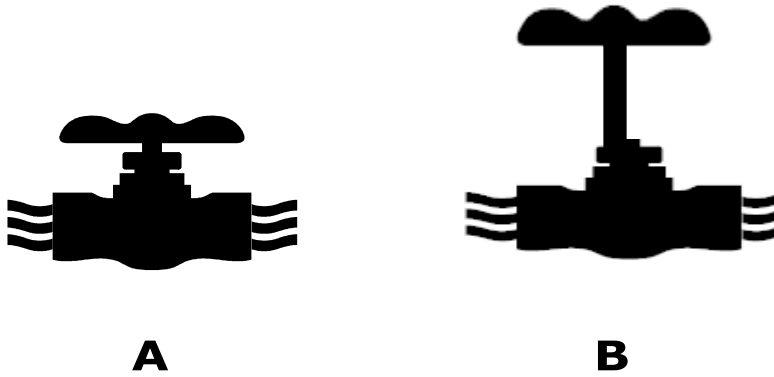
19. It is mid-day and sunny. Which picture shows a more likely representation (A or B)? (If equal, mark C.)



20. The screws shown below are equal diameter and each has the same distance between its threads. Which screw, (A or B) will require more work to embed? (If equal, mark C.)



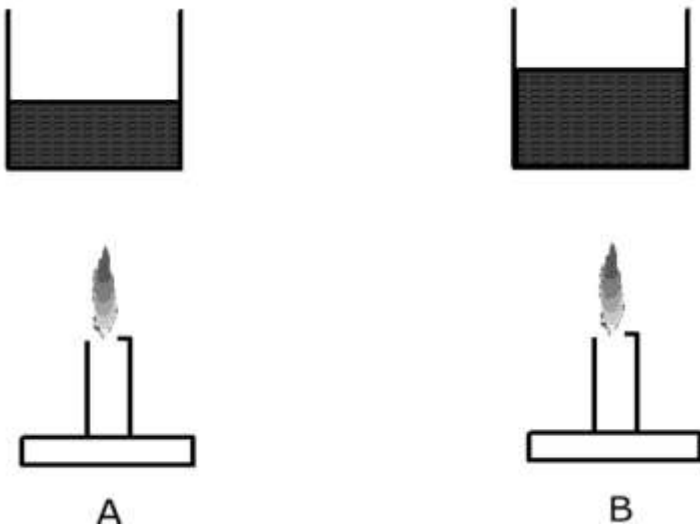
21. Will the water flow more easily through valve A or B? (If equal, mark C.)



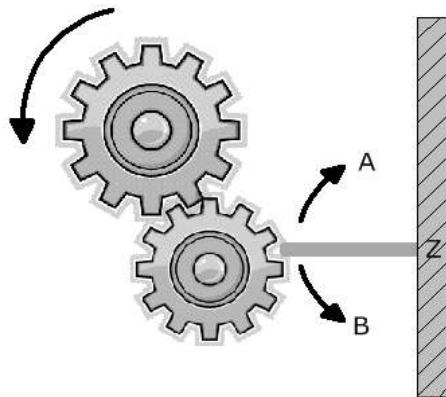
22. The bottle shown in diagram A floats in fresh water. The same size and weight bottle in diagram B floats in ocean saltwater. Which bottle will be more exposed above the surface of the water (A or B)? (If equal, mark C.)



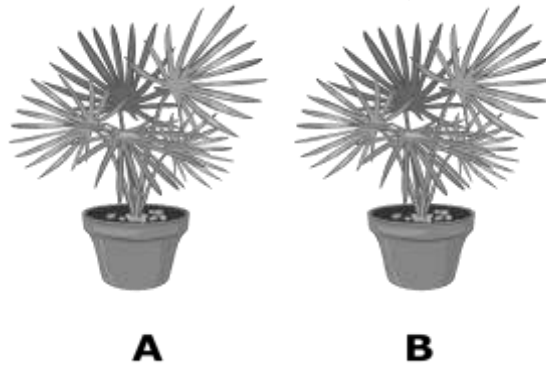
23. After a burner is lit beneath a beaker of water and the water has boiled for 10 minutes, will the water surface be lower (A) or higher (B)? (If equal, mark C.)



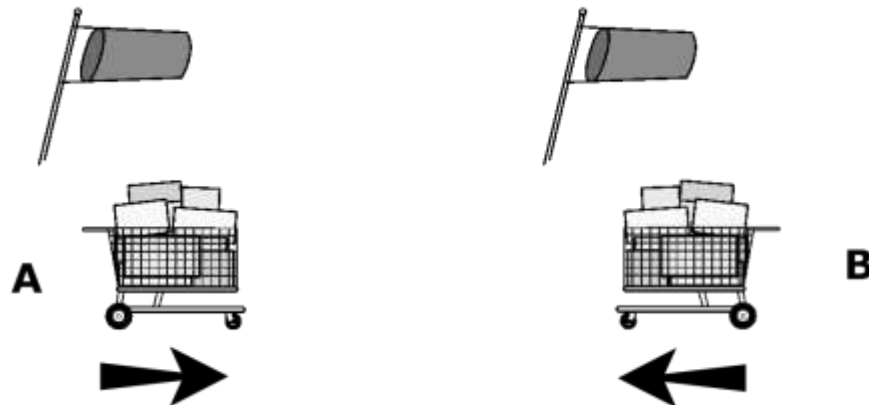
24. As the top gear moves counterclockwise, will the flexible bar that is secured to the wall at Z, move upward (A) or downward (B)? (If equal, mark C.)



25. Identical plants are maintained indoors by an office. Plant A has just been watered thoroughly for 1/2 hour. Plant B was watered the previous week. Which plant will be easier to move (A or B)? (If equal, mark C.)



26. The wind is blowing in the direction shown. In which direction, will the loaded cart move more easily (A or B)? (If equal, mark C.)



Answers with explanations begin on the next page.