

2018-2019 DoD STARBASE Questionnaire

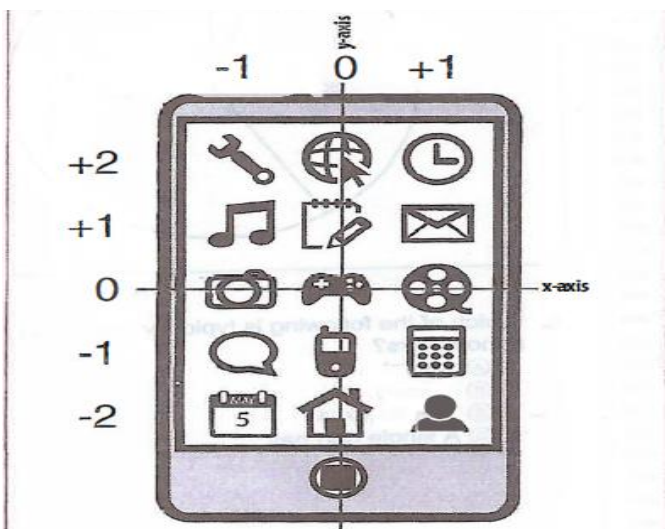


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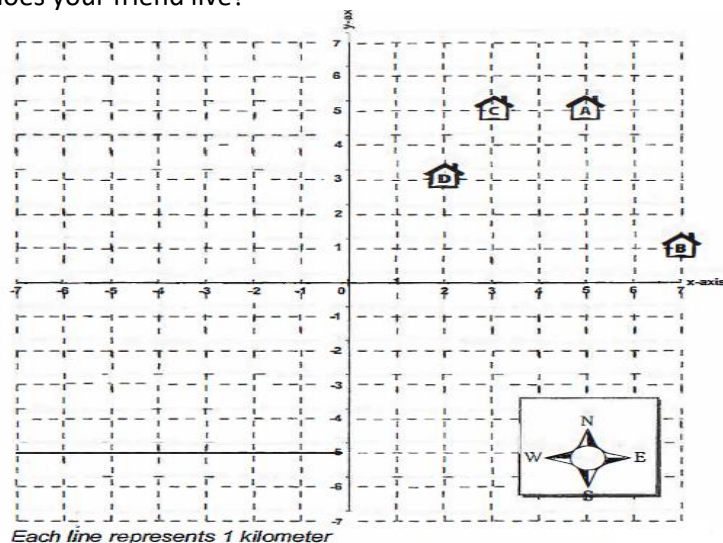
- Sodium and Chloride bond to form salt (NaCl). What does this bonded substance represent?
 - A compound
 - An atom
 - A nucleus
 - A cell
- Which of the following can **NOT** be learned from constructing a 3-D model of a car?
 - What the volume and the mass of the real car will be.
 - What gas mileage the car will get.
 - How all the parts will fit together.
 - What colors would look nice on the car.
- An Engineering team is meeting for the first time. According to the Engineering Design Process, what will they be doing first?
 - Specifying requirements.
 - Brainstorming solutions.
 - Defining the problem.
 - Constructing a hypothesis.
- Which of the following is typically measured in nanometers?
 - An ant
 - A seed
 - The flu virus
 - A single dog hair
- Two boats are passing by each other and passing cargo from one boat to the other. Based on Bernoulli's Principle, what happens if water is forced between the two boats?
 - The boats will move toward each other.
 - The boats will move away from each
 - Neither boat will move.
 - The movement of the boats depends on the strength of the force exerted.

- Which of the following would be a good reason to use longitude and latitude coordinates?
 - Analyze the weather pattern of a region.
 - Find the specific location of a building.
 - Determine the terrain of an area.
 - Determine the depth of a lake.
- When using computer design software to build a model, the first step is to...
 - Define the shape that will be extruded.
 - Document the dimensions of the part.
 - Communicate with the manufacturing engineers.
 - Apply interesting borders to the design.
- Of the following, which tool would be appropriate to measure the volume of a glass of milk?
 - Ruler
 - Graduated cylinder
 - Eyedropper
 - Balance
- Which one of Newton's Laws explains why it is important to wear a seat belt in a moving car?
 - First Law of Motion- an object in motion will stay in motion unless acted upon by an outside force.
 - Second Law of Motion- acceleration of an object increases as the amount of force increases.
 - Third Law of Motion- for every action there is and equal and opposite reaction.
 - Law of Gravity- an object attracts another object in direction proportion to their combined mass.

- To answer this question, first locate a starting point at coordinates (-1,3). From there, track your progress as you walk 2 kilometers North, then go 1 kilometer West and stop for lunch. After lunch, you head to your friend's house which is 5 kilometers to the East. Where does your friend live?
 - House A
 - House B
 - House C
 - House D



- What feature will open when you touch the screen on this smartphone at coordinates (-1, +1)?
 - Telephone
 - Calculator
 - Music Player
 - Email



- House A
- House B
- House C
- House D

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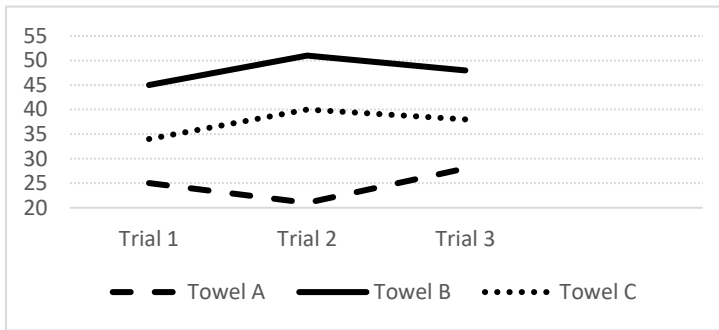


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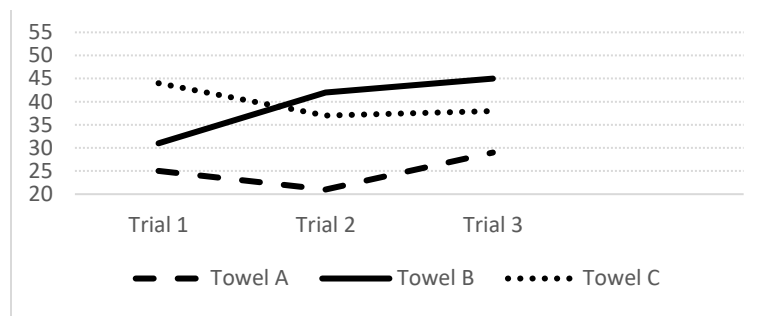
12. An engineer is testing how well three different towels absorb liquids over three trials. The data for the experiments is in the table below. Select the graph that correctly represents the data of the experiment.

Amount of water absorbed			
Towel	Trial 1	Trial 2	Trial 3
Towel A	25 milliliters	22 milliliters	28 milliliters
Towel B	34 milliliters	40 milliliters	38 milliliters
Towel C	45 milliliters	51 milliliters	47 milliliters

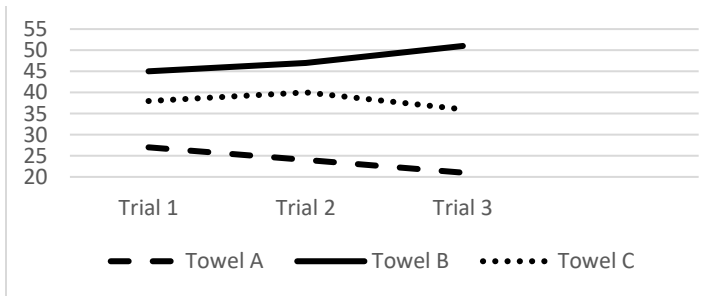
A.



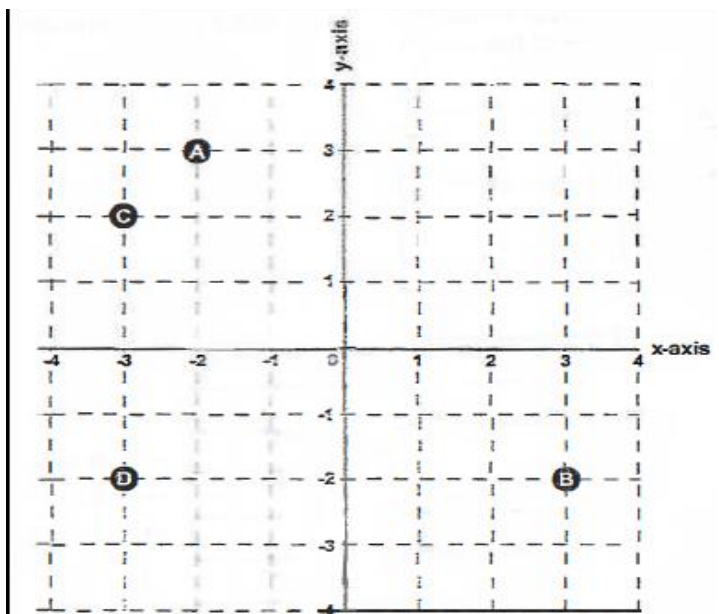
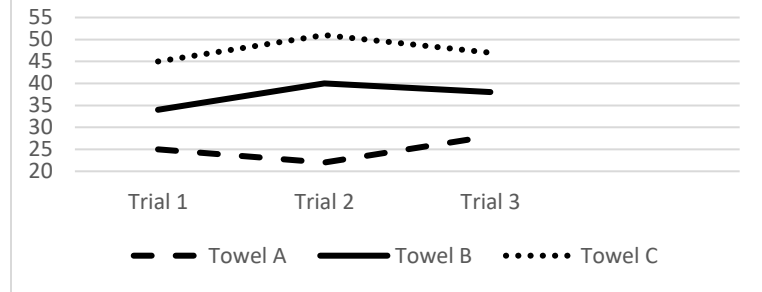
B.



C.



D.



13. In the graph above, find the letter that is at coordinates (3, -2). Is it A, B, C, or D?

- A. A
- B. B
- C. C
- D. D

14. While testing how well a surface repels water, you observe that a water droplet forms a round shape on the surface, as shown here. The best conclusion drawn from this observation is that the surface is:

- A. Very cold
- B. Hydrophobic
- C. Hydrophilic
- D. Glass

