

Question 6

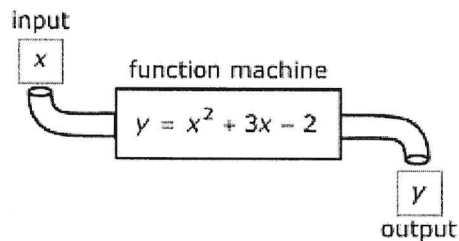
A store is having a sale on 3 different items. Each sign below shows the original price of an item and how to calculate the discount for that item.

Click and drag the signs below to place them in order from least amount of **discount** to greatest amount of **discount**

Least				Greatest
<div>Original Price: \$25.00 Take 10% off, and then take \$1.00 off that amount.</div>		<div>Original Price: \$24.00 Take 10% off, and then take 10% off that amount.</div>		<div>Original Price: \$30.00 Take \$1.50 off, and then take 10% off that amount.</div>

Question 7

The function machine below takes an input value, x , processes that value according to the processing equation inside the function machine and creates an output value, y . From the numbers provided below the function machine, drag an input value to box x and the correct output value to box y .

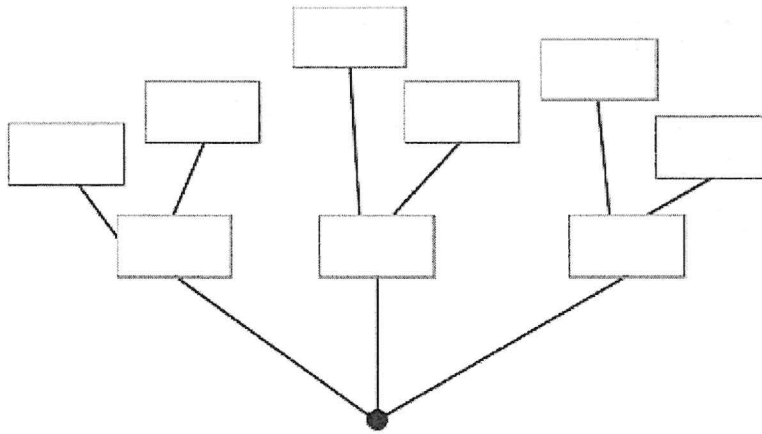


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2020 AMI Grades 9-12 Mathematics

Question 8

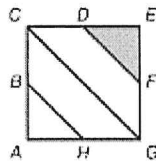
Elaine's Grocery has a lunch counter where people can order 3 types of sandwiches: egg salad, chicken salad, or falafel. Sandwiches can be made with 2 types of bread: pita or baguette. Create a tree diagram by dragging and dropping the sandwich choices into the empty boxes to show all the possible combinations for a sandwich from this lunch counter.



pita	pita	pita
baguette	baguette	baguette
egg salad	egg salad	egg salad
chicken salad	chicken salad	chicken salad
falafel	falafel	falafel

Question 9

In square $ACEG$ shown below, B , D , F , and H are the midpoints of \overline{AC} , \overline{CE} , \overline{EG} , and \overline{AG} , respectively. A student thinks that the area of $\triangle DEF$, shown shaded, is $\frac{1}{4}$ the area of square $ACEG$. Explain why the student is NOT correct.



Students used a *viscometer* (a device that measures the viscosity of a substance) to study several liquids. The viscometer consisted of a tube to hold a liquid, a metal ball, and a magnetic pad that can hold or release the ball (see Figure 1).

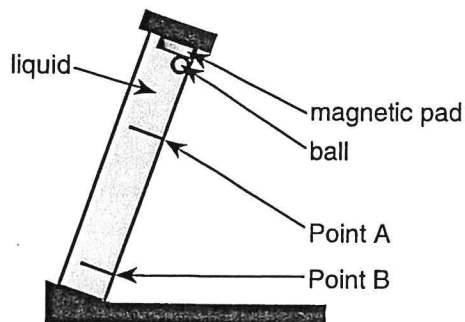


Figure 1

The liquid is added to the tube and allowed to become still. The cap, to which the magnetic pad and ball are attached, is fitted on the tube. The ball is then released by remote control from the pad, and the time it takes for the ball to roll from Point A to Point B (the *roll time*) is measured. Six liquids (Liquids A–F) of known viscosity (in centipoise, cp) at 25°C were supplied with the viscometer for use as standards (see Table 1).

Table 1	
Liquid	Viscosity (cp)
A	1
B	50
C	100
D	200
E	500
F	1,000

Experiment 1

The roll time for each of Liquids A–F was measured at 25°C in the viscometer. The students prepared Figure 2 based on their results.

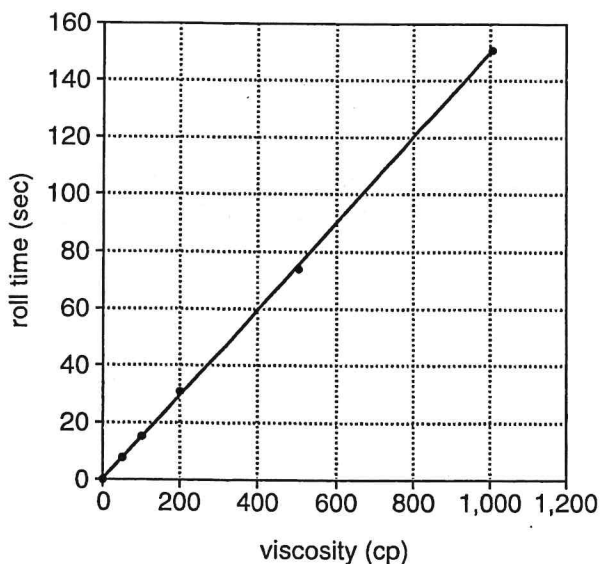


Figure 2

Experiment 2

The roll time of several common liquids was measured at 25°C in the viscometer (see Table 2). (Note: SAE numbers refer to viscosity ratings set by the Society of Automotive Engineers.)

Table 2	
Liquid	Roll time (sec)
Corn syrup	12
Kerosene	2
H ₂ O	1
SAE 10 motor oil	8
SAE 20 motor oil	30
SAE 30 motor oil	60
SAE 50 motor oil	180

- Based on Experiments 1 and 2, the viscosity of SAE 30 motor oil at 25°C is closest to which of the following?
 - 30 cp
 - 60 cp
 - 200 cp
 - 400 cp
- Based on Experiments 1 and 2, the viscosity of SAE 40 motor oil at 25°C would most likely be:
 - lower than 200 cp.
 - between 200 cp and 300 cp.
 - between 300 cp and 400 cp.
 - higher than 400 cp.
- A student claimed that at 25°C, SAE 20 motor oil has a lower viscosity than does Liquid C. Based on the results of Experiments 1 and 2, explain why the student's claim was INCORRECT. As part of your explanation, give the viscosity of each liquid at 25°C.
- A different liquid, Liquid Z, is tested as in Experiment 1, and its viscosity is determined to be 400 cp. Use Figure 1 to determine the approximate roll time for Liquid Z at 25°C. Then, identify the liquid in Table 2 that, at 25°C, has a viscosity closest to the viscosity of Liquid Z.

AMI Day 7 - English / Reading

Name _____

Analyzing Strategy, Organization, and Style

Directions: Read the passage below, and then answer the questions that follow. Choose the letter of the best answer.

¹ Certain foods trigger memories and feelings in me. ² For instance, whenever I eat a wisp of cotton candy and feel the fluffy spun sugar melt on my tongue, I remember my first sojourn to the circus. ³ When I remember that moment, I experience a rush of positive feelings: delight at seeing exotic animals, excitement at the daring escapades of the acrobats, and a sense of safety and contentment at being with my father. ⁴ Suddenly, I am sitting in awe on Dad's lap again as elephants parade by with acrobats pirouetting on their backs.

⁵ However, the memories and feelings triggered by foods are not always positive. ⁶ For example, I feel very odd when I eat tuna fish. ⁷ I'm sure this happens because once when I was little, I fell into a deep sleep on the living room couch and slept through dinner. ⁸ Except for this instance, I have always been a light sleeper. ⁹ Ever since then, a tuna fish sandwich has the power to make me feel a little weird, as if I have missed an important opportunity. ¹⁰ When I woke, the house was dark and everyone had gone to bed. ¹¹ I walked upstairs through the shadowy, creepy house to tell my mother I was hungry. ¹² She came downstairs and made me a tuna fish sandwich.

- 1 Which best describes the author's purpose?
 - A to persuade
 - B to evaluate
 - C to entertain
 - D to inform
- 2 Which of the following changes would be best to make the sequence of ideas in the first paragraph clearer?
 - A Reverse the order of the last two sentences.
 - B Add the transition "however" to Part 3.
 - C Delete the first sentence.
 - D Add another detail about the circus.
- 3 Which of the following draws attention away from the main focus?
 - A Part 4
 - B Part 6
 - C Part 8
 - D Part 10
- 4 Which of the following changes would improve the sequence of ideas in paragraph 2?
 - A Move Part 9 to the end of the paragraph.
 - B Delete Part 10.
 - C Add the transition "Additionally" to Part 11.
 - D Delete the transition "However" in Part 5.
- 5 If the writer wanted to supplement the information in paragraph 2, which of the following would be an appropriate addition?
 - A An explanation of why some people are light sleepers.
 - B A description of how tuna fish fits into a well-balanced diet.
 - C A sentence about how beans and rice upset her stomach.
 - D A discussion of how microwave dinners make her feel lonely.
- 6 In which of the following should the underlined word be replaced by a word that is better suited to the audience of this passage?
 - A Part 2
 - B Part 3
 - C Part 5
 - D Part 9

АМТ 137

Reading Comprehension

Context

Read the passage, and then answer the questions below it. ...

As far as I can judge by the papers, we are between a state of anarchy and civil war. May God avert¹ both of these evils from us! I fear that mankind will not for years be sufficiently² Christianized to bear the absence of restraint and force. I see that four states have declared themselves out of the Union; four more will apparently³ follow their example. Then, if the border states are brought into the gulf of revolution, one half of the country will be arrayed⁴ against the other. I must try and be patient and await the end, for I can do nothing to hasten⁵ or retard⁶ it.

—"Letter to His Son" by Robert E. Lee

- | | |
|---|---|
| <p>1 In this passage, the word <u>avert</u> means—
 A redirect
 B collect
 C intensify
 D avenge</p> <p>2 In this passage, the word <u>sufficiently</u> means—
 A happily
 B adequately
 C moderately
 D decently</p> <p>3 The word <u>apparently</u> in this passage means—
 A eagerly
 B foolishly
 C evidently
 D reluctantly</p> | <p>4 In this passage, the word <u>arrayed</u> means—
 A dispersed
 B set
 C dressed in uniforms
 D allied</p> <p>5 The word <u>hasten</u> in this passage means—
 A accelerate
 B cause
 C aggravate
 D subdue</p> <p>6 The word <u>retard</u> in this passage means—
 A sharpen
 B retain
 C recapture
 D delay</p> |
|---|---|

