

Summer Assignment for Incoming 8th Grade Students

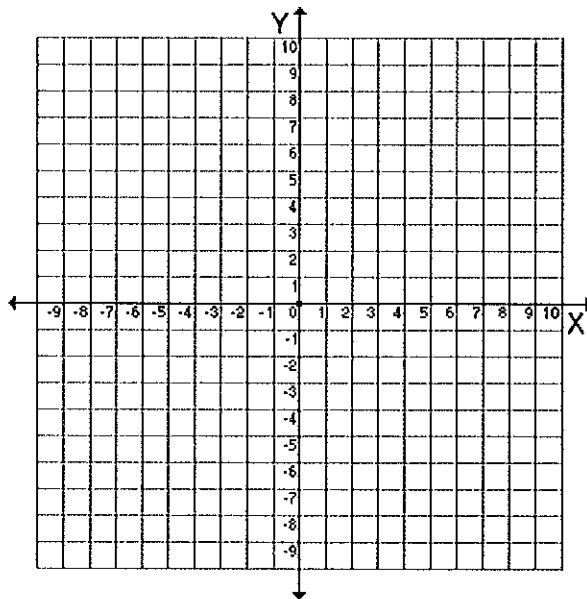
Please answer each question completely. Make sure that you show all of your work and explain, when necessary. This assignment is to be turned in on the first day of school.

- 1) A rectangular prism measuring 5 cm by 5 cm by 12 cm sits on its square base. It is filled with water until it reaches 4 cm from the top. Then the prism is sealed.
 - Illustrate the water in the figure above. Label all measurements.
 - Determine the volume of the water in the prism. Show all of your work.
 - The prism is turned on its side so that the 5 cm \times 12 cm face is the base. Show what the water looks like in this new position.
 - How far is the water from the top of the prism in this new position? Explain how you determined the new measurements of the water.

- 2) Matt lives in an apartment with five other people. He is trying to decide who will get to go the amusement park with him tomorrow, so he is going to choose two of his roommates at random. Two of his roommates have blue eyes, and the other three do not have blue eyes.
 - Draw a diagram to represent all of the possibilities of ways that he can select two of his roommates at random.
 - If he is going to take the two roommates that he chooses with him to the amusement park, what is the probability that the two chosen will both have blue eyes? Explain how you came up with your answer.

- 3) Sam made the following scores on unit tests for the term: 92, 98, 15, 92, 87, and 92
Sam's teacher said that his grade would be based on the mean of his grades. Sam argued that his grade should be based on the median score of his grades.
- Find the mean and the median of Sam's grades.
 - Which do you think best reflects Sam's work for the term? Explain your answer.

- 4) Points A (2, 3) and B (2, 8) are two vertices of rectangle ABCD with area 30.
- Plot both points on the plane below.
 - What are the dimensions of this rectangle?
 - What are the coordinates of the other two vertices? Is there more than one answer? Explain.



5. Matthew will use a random number generator 1,200 times. Each result will be a digit from 1 to 6. Make a prediction about the number of times the digit 5 will appear among the 1,200 results.

6. Tony exercised by stretching and jogging 5 days last week.

- He stretched for a total of 25 minutes during the week.
- He jogged for an equal number of minutes each of the 5 days.
- He exercised for a total of 240 minutes.
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Marie also exercised by stretching and jogging 5 days last week.

- She stretched for 15 minutes each day.
- She jogged for an equal number of minutes each of the 5 days.
- She exercised for a total of 300 minutes.

Determine the number of minutes Tony jogged each day last week and the number of minutes Marie jogged each day last week. Show your work and explain all the steps you used to determine your answers.

7. An airplane's altitude changed -378 feet over 7 minutes. What was the mean change of altitude in feet per minute?

8. Which equation has both 4 and -4 as possible values of y ?

A) $y^2 = 8$

B) $y^3 = 8$

C) $y^2 = 16$

D) $y^3 = 64$

Explain your answer.

9. Which number has the greatest value?

A) $0.18\bar{3}$

B) $0.1\bar{83}$

C) $0.5\bar{4}$

D) $0.\bar{54}$

Explain your answer.