

Eureka Math™ Assessment Packet

Grade 6 Modules 5 & 6

Module 5

Mid-Module Assessment	Qty: 30
End-of-Module Assessment	Qty: 30

Module 6

Mid-Module Assessment	Qty: 30
End-of-Module Assessment	Qty: 30

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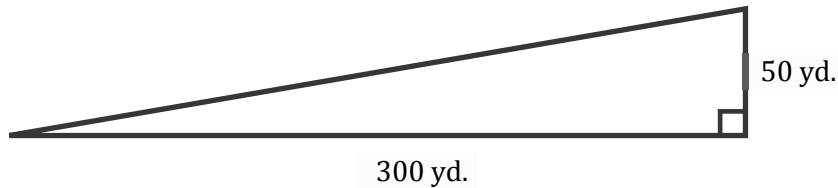


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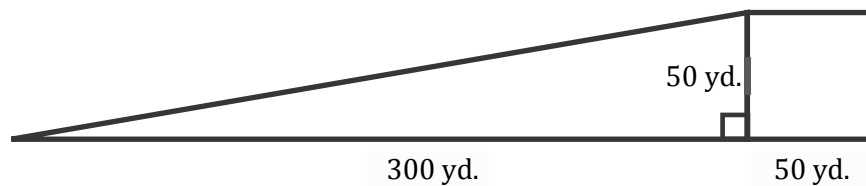
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1. David is the groundskeeper at Triangle Park, scale shown below.



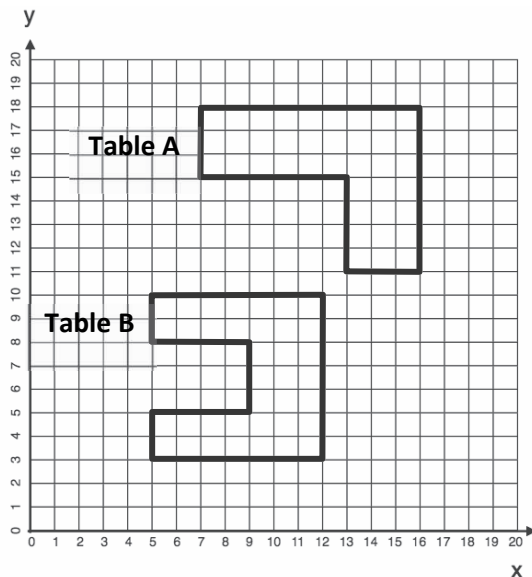
- a. David needs to cut the grass four times a month. How many square yards of grass will he cut altogether each month?

- b. During the winter, the triangular park and adjacent square parking lot are flooded with water and allowed to freeze so that people can go ice skating. What is the area of the ice?

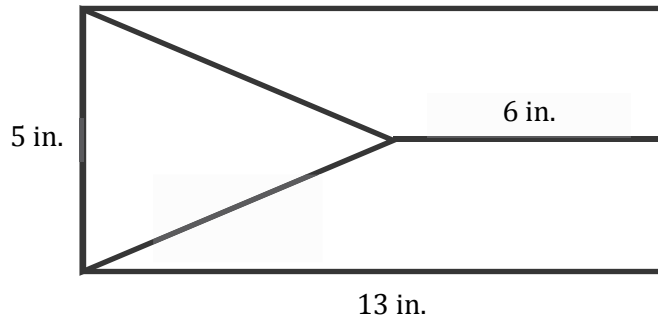


2. Mariska is looking for a new computer table. Below is a sketch of two computer tables she likes when looking at them from above. All measurements are in feet.
- a. If Mariska needs to choose the one with the greater area, which one should she choose? Justify your answer with evidence, using coordinates to determine side lengths.

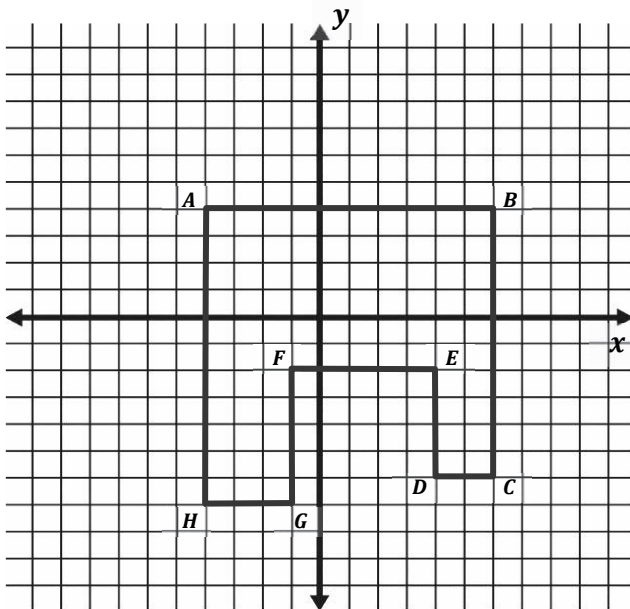
- b. If Mariska needs to choose the one with the greater perimeter, which one should she choose? Justify your answer with evidence, using coordinates to determine side lengths.



3. Find the area of the triangular region.



4. The grid below shows a bird's-eye view of a middle school.



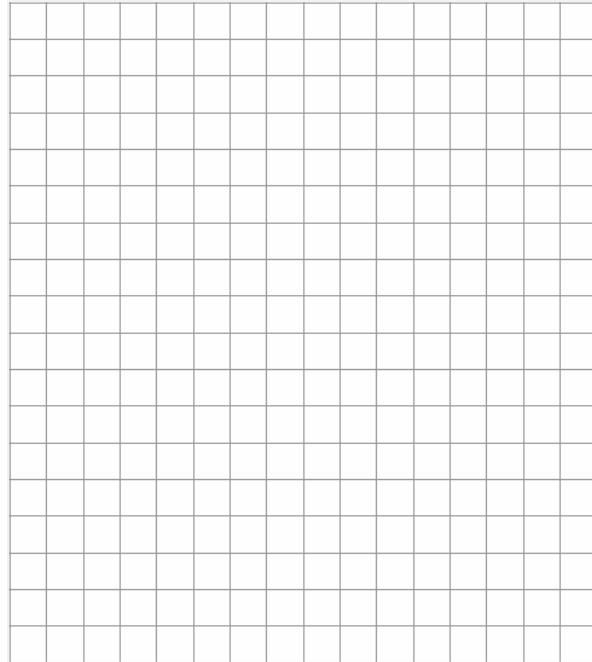
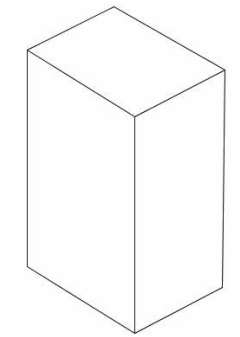
Point	Coordinates	Segment	Length (m)
A		\overline{AB}	
B		\overline{BC}	
C		\overline{CD}	
D		\overline{DE}	
E		\overline{EF}	
F		\overline{FG}	
G		\overline{GH}	
H		\overline{HA}	

- Write the coordinates of each point in the table.
- Each space on the grid stands for 10 meters. Find the length of each wall of the school.
- Find the area of the entire building. Show your work.

Name _____

Date _____

1. The juice box pictured below is 4 inches high, 3 inches long, and 2 inches wide.



- a. In the grid above, the distance between grid lines represents one inch. Use the grid paper to sketch the net of the juice box.
- b. Find the surface area of the juice box. Show your work.
- c. Find the volume of the juice box. Show your work.

2. The Cubic Crystal Company has a new Crystal Cube they want to sell. The packaging manager insists that the cubes be arranged to form a rectangular prism and that the package be designed to hold the Crystal Cubes exactly, with no leftover packaging. Each Crystal Cube measures 1 in. \times 1 in. \times 1 in. There are 24 Crystal Cubes to be sold in a box.
- a. What are the dimensions of the possible box designs in inches?

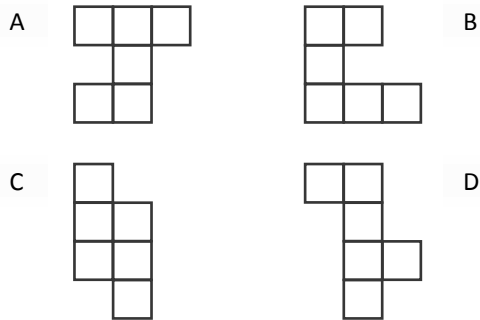
Height	Width	Length

- b. Which Crystal Cube box design will use the least amount of cardboard for packaging? Justify your answer as completely as you can.

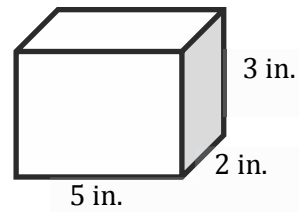
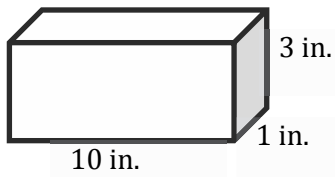
Height	Width	Length	Surface Area

- c. Another type of cube is the Mini Crystal Cube, which has an edge length of $\frac{3}{4}$ inch. What is the volume in cubic inches of one Mini Crystal Cube? Show your work.

3. Which of these nets can be folded to form a cube?



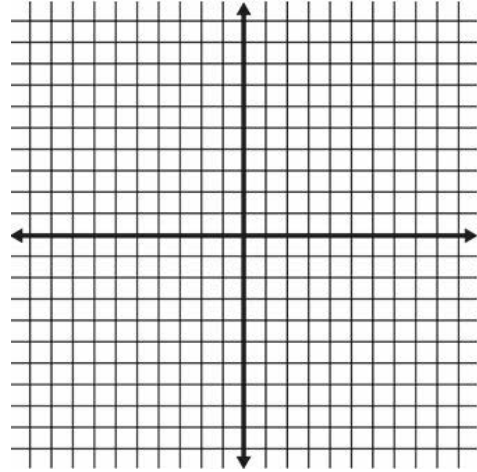
4. Which box below has the larger surface area?



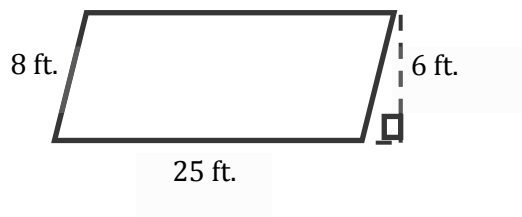
5. a. Draw a polygon in the coordinate plane using the given coordinates.

$(4, -4)$
 $(6, -2)$
 $(8, -6)$

- b. Calculate the area of the polygon.

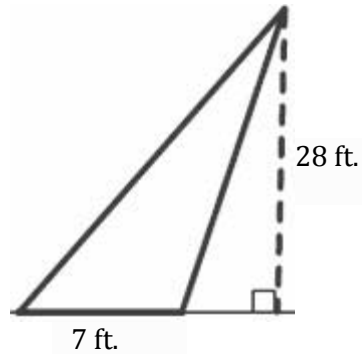


6. Eaglecrest Elementary School is creating a vegetable garden at the school.



- a. What is the area of the garden?

- b. After more discussion, Eaglecrest decided to change the location of the garden so that the vegetables can get more sunlight. Below is the new garden.



In which garden can Eaglecrest students plant more vegetables? Explain your reasoning.

Name _____

Date _____

1. For each of the following, identify whether or not it would be a valid *statistical question* you could ask about people at your school. Explain for each why it is, or is not, a statistical question.
- a. What are a typical number of hours of television watched by students at your school last night?

 - b. What is the school principal’s favorite television program?

 - c. Do most students at your school tend to watch at least one hour of television on the weekend?

 - d. What is the recommended amount of television specified by the American Pediatric Association?

2. In 2013, there were nine judges serving on the Supreme Court of the United States. The following table lists how long (the number of years) each judge had served on the court as of 2013.

Judge	Length of Service
Antonin Scalia	27
Anthony Kennedy	25
Clarence Thomas	22
Ruth Bader Ginsburg	20
Stephen Breyer	19
John Roberts	8
Samuel Alito	7
Sonia Sotomayor	4
Elena Kagan	3

- a. Calculate the mean length of service for these nine judges. Show your work.
- b. Calculate the mean absolute deviation (MAD) of the lengths of service for these nine judges. Show your work.
- c. Explain why the mean may not be the best way to summarize a typical length of service for these nine judges.

3. The following table displays data on calories for several Chinese foods (from Center for Science in the Public Interest, tabulated by the *Philadelphia Inquirer*).

Dish	Dish Size	Calories	Dish	Dish Size	Calories
Egg Roll	1 roll	190	House Lo Mein	5 cups	1,059
Moo Shu Pork	4 pancakes	1,228	House Fried Rice	4 cups	1,484
Kung Pao Chicken	5 cups	1,620	Chicken Chow Mein	5 cups	1,005
Sweet and Sour Pork	4 cups	1,613	Hunan Tofu	4 cups	907
Beef with Broccoli	4 cups	1,175	Shrimp in Garlic Sauce	3 cups	945
General Tso's Chicken	5 cups	1,597	Stir-Fried Vegetables	4 cups	746
Orange (crispy) Beef	4 cups	1,766	Szechuan Shrimp	4 cups	927
Hot and Sour Soup	1 cup	112			

- a. Round the Calories values to the nearest 100 calories, and use these rounded values to produce a dot plot of the distribution of the calories in these dishes.
- b. Describe the distribution of the calories in these dishes.
- c. Suppose you wanted to report data on calories per cup for different Chinese foods. What would be the calories per cup for Kung Pao chicken?

d. Could you calculate calories per cup for all of the foods listed in the table? Explain why or why not.

e. If you wanted to compare the healthiness of these foods in terms of calories, would you compare the calorie amounts or the calories per cup? Explain your choice.

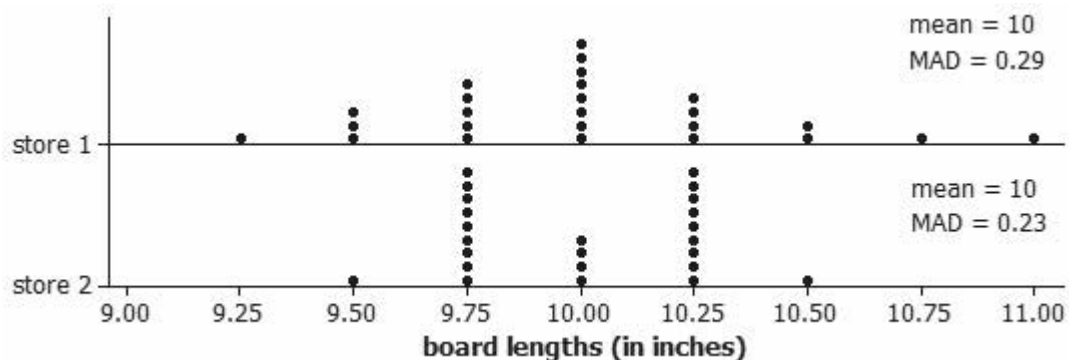
4. A father wanted some pieces of wood that were 10 inches long for a building project with his son. He asked the hardware store to cut some longer pieces of wood into 10-inch pieces. However, he noticed that not all of the pieces given to him were the same length. He then took the cut pieces of wood home and measured the length (in inches) of each piece. The table below summarizes the lengths that he found.

Length (inches)	8.50– < 8.75	8.75– < 9.00	9.00– < 9.25	9.25– < 9.50	9.50– < 9.75	9.75– < 10.00	10.00– < 10.25	10.25– < 10.50	10.50– < 10.75	12.00– < 12.25
Frequency	1	2	2	4	3	2	5	6	1	1

a. Create a histogram for these data.

b. Describe the shape of the histogram you created.

- c. The father wanted to know whether the mean length was equal to 10 inches or if the wood cutter cut pieces that tended to be too long or tended to be too short. Without calculating the mean length, explain based on the histogram whether the mean board length should be equal to 10 inches, greater than 10 inches, or less than 10 inches. Explain what strategy you used to determine this.
- d. Based on the histogram, should the mean absolute deviation (MAD) be larger than 0.25 inch or smaller than 0.25 inch? Explain how you made this decision.
- e. Suppose this project was repeated at two different stores and the following two dot plots of board lengths were found. Would you have a preference for one store over the other store? If so, which store would you prefer, and why? Justify your answer based on the displayed distributions.

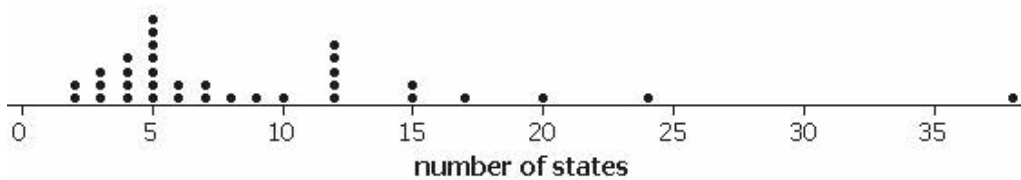


5. Suppose you are timing how long it takes a car to race down a wood track placed at a forty-five degree angle. The times for five races are recorded. The mean time for the five races is 2.75 seconds.
- a. What is the total time for the five races (the times of the five races summed together)?
- b. Suppose you learn that the timer malfunctioned on one of the five races. The result of the race had been reported to be 3.6 seconds. If you remove that time from the list and recompute the mean for the remaining four times, what do you get for the mean? Show your work.

Name _____

Date _____

1. A group of students were asked how many states they have visited in their lifetime. Below is a dot plot of their responses.



- a. How many observations are in this data set?
- b. In a few sentences, summarize this distribution in terms of shape, center, and variability.
- c. Based on the dot plot above and without doing any calculations, circle the best response below, and then explain your reasoning.
- A. I expect the mean to be larger than the median.
 - B. I expect the median to be larger than the mean.
 - C. The mean and median should be similar.

Explain:

- d. To summarize the variability of this distribution, would you recommend reporting the interquartile range or the mean absolute deviation? Explain your choice.
- e. Suppose everyone in the original data set visits one new state over summer vacation. Without doing any calculations, describe how the following values would change (i.e., larger by, smaller by, no change—be specific).

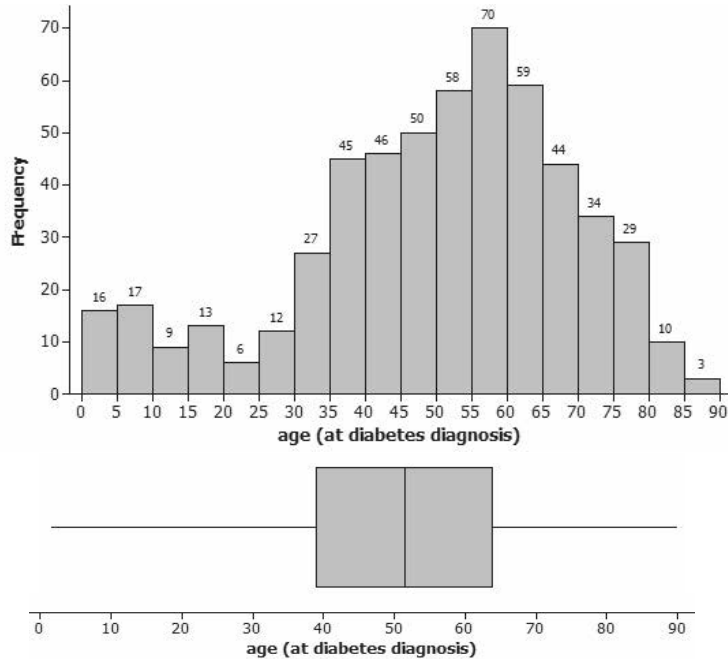
Mean:

Median:

Mean Absolute Deviation:

Interquartile Range:

2. Diabetes is a disease that occurs in both young and old people. The histogram and box plot below display the ages at which 548 people with diabetes first found out that they had this disease.



The American Diabetes Association has identified two types of diabetes:

- Type 1 diabetes is when the body does not produce insulin. Type 1 diabetes is usually first found in children and young adults (less than 20 years of age).
 - Type 2 diabetes is when the body does not produce enough insulin and the cells do not respond to insulin. Type 2 diabetes is usually first found in older adults (50 years of age or older).
- a. Explain how the histogram shows the two types of diabetes.

- b. Estimate the percentage of these 548 people who found out they had the disease before age 20. Explain how you made your estimate.
- c. Suggest a statistical question that the box plot of the age data would allow you to answer more quickly than the histogram would.
- d. The interquartile range for these data is reported to be 24. Write a sentence interpreting this value in the context of this study.

3. The following table lists the diameters (in miles) of the original nine planets.

Planet	Diameter (in miles)
Mercury	3,030
Venus	7,520
Earth	7,926
Mars	4,217
Jupiter	88,838
Saturn	74,896
Uranus	31,762
Neptune	30,774
Pluto	1,428

- a. Calculate the five-number summary (minimum, lower quartile, median, upper quartile, and maximum) of the planet diameters. Be sure to include measurement units with each value.

Minimum:

Lower quartile:

Median:

Upper quartile:

Maximum:

- b. Calculate the interquartile range (IQR) for the planet diameters.

- c. Draw a box plot of the planet diameters.
- d. Would you classify the distribution of planet diameters as roughly symmetric or skewed? Explain.
- e. Pluto was recently reclassified as a *dwarf planet* because it is too small to clear other objects out of its path. The mean diameter with all nine planets is 27,821 miles, and the MAD is 25,552 miles. Use this information to argue whether or not Pluto is substantially smaller than the remaining eight planets.