

Summer packet for students who have successfully completed Pre-Algebra

Student's name: _____

Pre-Algebra Teacher: _____

I have checked for the completion of the packet.

Parent/Guardian's signature

The goal of Thomas Edison Energysmart Charter school is to assist your child in becoming a lifelong learner. The summer months provide the perfect opportunity to extend and enrich your child's learning experiences. Summer Reading/Writing and Math packets will help prepare your child for 2017-18 school year.

All students are expected to read through and follow directions for both Reading/Writing and Math packets. Packets will be due by September 1, 2017. The math packet will count as 1st marking period project grades in math and there would not any other math project during the first marking period. Submission can also be done online by emailing/sharing the document with the previous year Pre-Algebra teacher.

Ten points will be taken out if the packet is late by a day, twenty points will be taken out if late by two days. The student would get 0 points if it is late by three or more days. Plagiarized work would receive a score of 0.

Apart from the above, the following rubric will be used:

Score of 100	Score of 90	Score of 80	Score of 70	Score of 0
If all 90 to 100% of the responses are correct	If 80-90% of the responses are correct	If 70-80% of the responses are correct	If less than 60-70% of the responses are correct	If less than 60% of the responses are correct

Enjoy the break!

1. A scientist uses a submarine to study ocean life.
- She begins at sea level, which is at an elevation of 0 feet.
 - She travels straight down for 90 seconds at a speed of 3.5 feet per second.
 - She then travels directly up for 30 seconds at a speed of 2.2 feet per second.

After this 120-second period, how much time, in seconds, will it take for the scientist to travel back to sea level at the submarine's maximum speed of 4.8 feet per second? Round your answer to the nearest tenth of a second.

Show your work.

Answer _____ seconds

2. Harper has \$15.00 to spend at the grocery store. She is going to buy bags of fruit that cost \$4.75 each and one box of crackers that costs \$3.50.

Write and solve an inequality that models this situation and could be used to determine the **maximum** number of bags of fruit, b , Harper can buy.

Show your work.

Answer _____ bags of fruit

3. Members of a baseball team raised \$967.50 to go to a tournament. They rented a bus for \$450.00 and budgeted \$28.75 per player for meals. They will spend all the money they raised.

Write and solve an equation that models this situation and could be used to determine the number of players, p , the team could bring to the tournament.

Show your work.

Answer _____ players

4. A cell phone store sells an extended warranty plan to its customers. It charges \$15 for each plan. However, if a phone is found to need service, it will cost the store \$100 to repair the phone. The store sells 40 extended warranty plans in a month. It had to repair 2 phones during that same period.

Write a numeric expression to represent the amount of money earned by the store for this program.

What is the final amount of money the store makes on this extended warranty plan for the month?

5. Harold rented a steam cleaner to clean his carpets. There was a charge for cleaning solution and a daily rental charge for three days. The total bill was \$83.50.
- The cleaning solution cost \$25.
 - The cost to rent the cleaner was the same for each day.
- How much, in dollars, did Harold pay for each day of the rental?
Enter your answer as a decimal in the box.

6. **When will this download be done?!**

Jonah started listening to an album just as he clicked to download it. The screen image shows the download progress at the end of the first song.

CD Player	
March 5, Thurs	4:52 pm
Track Number	Song Length (Min:Sec)
Track 1	3:56
Track 2	4:42
Track 3	6:16
Track 4	5:35
Download : 8% Complete	
Track 5	5:39
Track 6	6:35
Track 7	3:48
Track 8	5:01
Track 9	6:29
Track 10	3:09
Track 11	3:27
Track 12	4:42

Jonah continues listening to the album in order. Which song will Jonah be listening to when the download of the full album is complete? Show your work or explain your answer.

7. **How many texts?**

Estimate how many text messages are sent monthly by all Americans. (Use your answer from 2a to complete.) Show and label your work or explain your answer. Be sure to explain any estimates you use in your reasoning and calculations.

8. **Trophy stand**

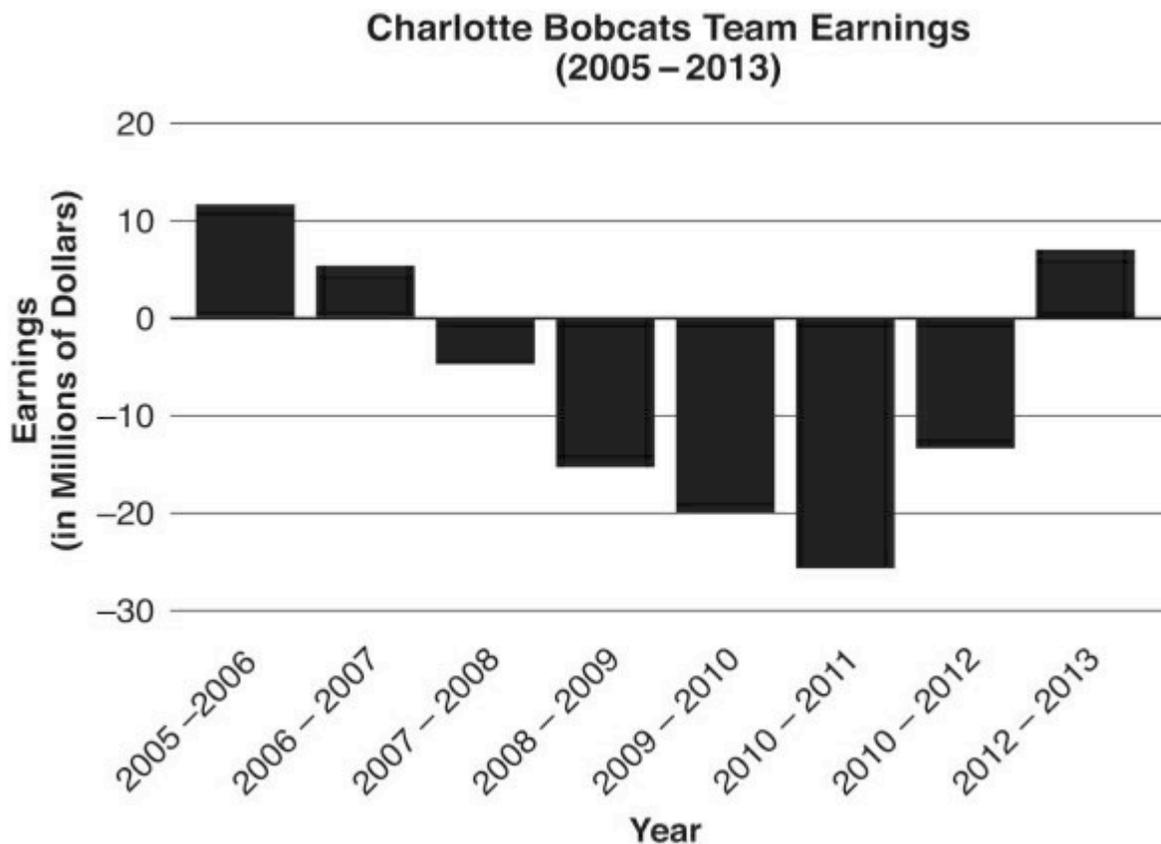
Central High School won the league softball championship game last weekend. The team would like to make a display stand for the trophy. The stand will be a rectangular prism. The players plan to paint the stand white so they can each paint a handprint on the stand in different colors.

The players want to fit each of their handprints on the stand without overlapping with any other handprints. There are 24 players on the team.

Design a display stand that meets the requirements above. What are its dimensions? Show or explain how you found the dimensions using words, pictures and/or numbers.

9. **Will owning an NBA Team make you rich?**

The graph below shows the earnings (the amount the team made or lost) for the Charlotte Bobcats from 2005–2013.



From: <http://www.statista.com/statistics/286129/operating-income-charlotte-bobcats-national-basketball-association/>

What are the estimated average yearly earnings? Show or explain your work.

10. Determine whether each given expression is equivalent to

$\frac{1}{2}x - 1$ or equivalent to $x - \frac{1}{2}$.

Then use your answers to drag and drop the expressions into the proper box.

$$\frac{2}{3}\left(\frac{3}{4}x - \frac{3}{2}\right)$$

$$(2x + 1) - \left(x + \frac{3}{2}\right)$$

Equivalent to $\frac{1}{2}x - 1$

Equivalent to $x - \frac{1}{2}$

11. A garden is 20 feet long by 8 feet wide. The length and width of the garden will each be increased by the same number of feet. This expression represents the perimeter of the larger garden:

$$(x + 20) + (x + 8) + (x + 20) + (x + 8)$$

Which expression is equivalent to the expression for the perimeter of the larger garden?

Select **all** that apply.

- A. $4x + 56$
- B. $2(2x + 28)$
- C. $2(x + 20)(x + 8)$
- D. $4(x + 20)(x + 8)$
- E. $2(x + 20) + 2(x + 8)$

12. Two classes are collecting food for donations. In the first week, Class 1 collected 15 items and Class 2 collected 16 items.

Part A In the second week, Class 1 had a 20% increase in the number of items collected. How many items did Class 1 collect in the second week? Show your work.

Part B In the second week, Class 2 collected 20 items. What is the percent increase from the number of items collected in the first week to the number of items collected in the second week? Show your work.

Part C In the third week, Class 1 collected 35 items. In the third week, how many items would Class 2 need to collect for the total number of collections for each class to be the same for all 3 weeks? Show your work.

13. Carol's starting pay for her summer job is \$10.25 per hour. Carol earns exactly three raises this summer.
- For the first raise, she receives a 50 cent-per-hour raise.
 - For the second raise, she receives a 10% raise per hour.
 - For the third raise, she receives another 50 cent-per-hour raise.

Carol is told that she can have the same job next summer. She will be given a 5% raise per hour based on her pay at the end of this summer. How much money will Carol earn per hour for this job at the start of next summer? Show or explain your work.

14. At a department store, sweaters are on sale for 30% off the original price. Scarves are not on sale and cost \$2.10 each, but for every two scarves purchased, the shopper receives one free.

Part A One sweater has a sale price of \$10.50. Another sweater has a sale price of \$12.60. What was the total original price for these two sweaters? Show all your work and explain your answer.

Part B The sales tax on clothing is 8%. What is the total cost for both sweaters from Part A, plus six scarves, including tax? Show all your work and explain your answer.

15. An underwater vehicle is at a depth of 1,432 feet. The vehicle has a descent rate of 480 feet per minute.

Part A Write an equation to model the depth of the underwater vehicle D , after m minutes.

Part B How many minutes will it take the underwater vehicle to reach a depth of 10,792 feet?

16. A theater group sold n tickets to a musical for \$10 each. The group had \$1,238 remaining after paying \$4,882 to rent the theater.

Part A Dillon wrote the equation $1,238 = 4,882 - 10n$ to represent this situation. Explain whether you agree or disagree with Dillon and why. If you disagree with Dillon, write a correct equation.

Part B Solve the equation Dillon wrote, or the new equation you wrote if you disagreed with Dillon. Show or explain your work.

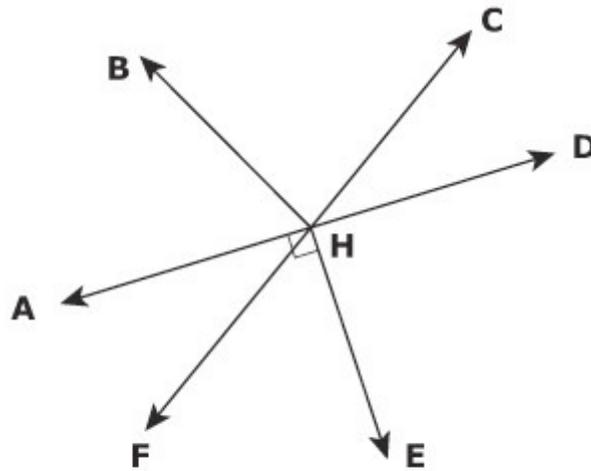
Part C Explain what your solution means in the context of the problem.

17. In the first 5 basketball games of the season, Garth scored 7, 11, 8, 4, and 11 points. After the sixth game Garth wants his mean number of points per game to be at least 9.

Part A Write an inequality that represents this situation. Let x represent the number of points Garth scores in the sixth game.

Part B Solve the inequality.

18. In the diagram, $m\angle BHC$ is twice $m\angle CHD$, $m\angle BHA = 39^\circ$, \overline{AD} and \overline{FC} intersect at point H , and $\overline{AD} \perp \overline{EH}$.

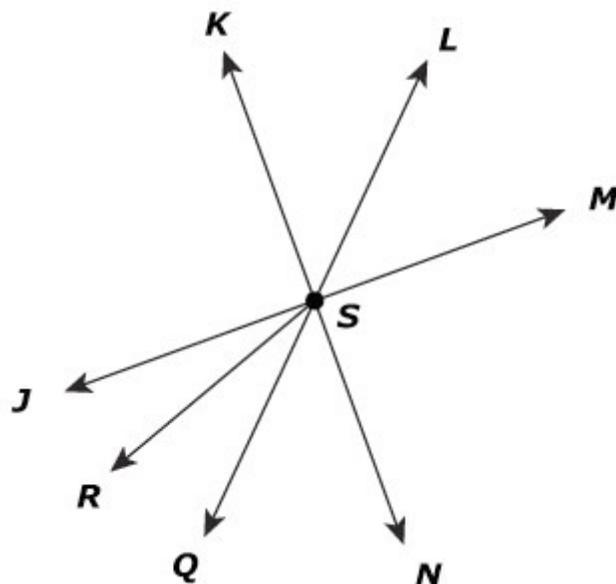


Not Drawn to Scale

- Part A What is $m\angle BHC$? Show or explain your work.
- Part B What is $m\angle AHF$? Show or explain your work.
- Part C What is $m\angle FHE$? Show or explain your work.
19. Each edge of a right triangular prism is 8 inches in length. What is the surface area of the right triangular prism? Show your work.
- $V = lwh$
- $SA = ph + 2B$

20.

In the diagram, $m\angle JSR$ is 50° less than $m\angle NSR$, \overline{LQ} and \overline{KN} intersect at point S , $m\angle NSQ$ is equal to $m\angle JSQ$, and $\overline{JM} \perp \overline{KN}$.



Part A What is $m\angle JSR$?

Part B What is $m\angle KSL$?

Part C What is $m\angle LSM$?

21. Each edge of a triangular pyramid is 6 centimeters. What is the surface area of the triangular pyramid?

22. A marble game is played on a round board.

Part A The circumference of the board is 29.85 inches. To the nearest tenth of an inch, what is the diameter of the board?

Part B What is the area of the board to the nearest square inch?

23. Part A Draw an isosceles trapezoid with a longer base of 12 centimeters, a shorter base of 6 centimeters, and a height of 4 centimeters. Label each base and the height with their respective measurements. Explain how you constructed the figure.

Part B What is the area, in square centimeters, of the trapezoid? Show or explain your work.

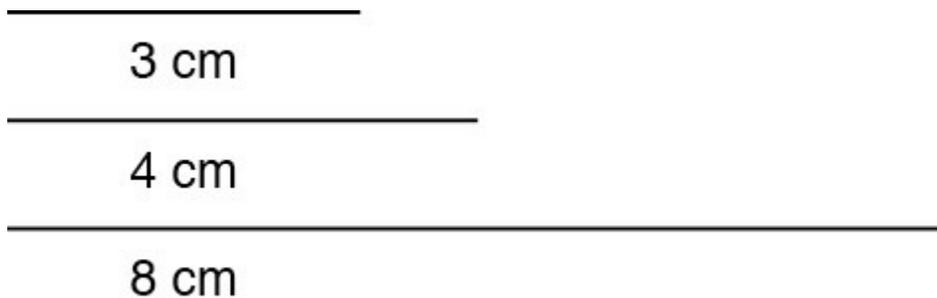
24. John wants to build a flower bed. He plans to make it 8 feet long, 6 feet wide, and 6 inches deep.

Part A What is the volume of John's flower bed? Be sure to label your answer. Show or explain your work.

Part B John plans to fill the flower bed with top soil that comes in bags. Each bag holds 1.5 cubic feet of top soil. What is the least number of bags of top soil John will have to buy to fill his flower bed? Show or explain your work.

25. Ms. Porter's class is working with constructing geometric shapes.

Part A. Ms. Porter gives her students the following side lengths to use to try to construct a triangle.



Tell whether the students can form 0, 1, or 2 different triangles from these side lengths and *explain why*. Note that congruent triangles are NOT considered different triangles. The endpoints of each segment must be connected. If the students cannot form any triangles from these side lengths, explain how one side length could be changed so that at least one triangle can be formed. Otherwise, construct the triangle(s).

Part B. Ms. Porter gives her students the following 2 side lengths and an angle measure of 126° between these two sides to use to try to construct a triangle. The third side can be any length or lengths needed

to form a triangle.

3 cm

5 cm

Tell whether the students can form 0, 1, or 2 triangles from these side lengths and this angle measure and *explain why*. Note that congruent triangles are NOT considered different triangles. The endpoints of each segment must be connected. If the students cannot form any triangles from these side lengths, explain how one side length could be changed so that at least one triangle can be formed. Otherwise, construct the triangle(s).

Part C. Ms. Porter gives her students the following side lengths and an angle measure of 107° . The angle of 107° must attach between the shorter side length and the side of unknown length and must be across from the longer side length.

2 cm

3 cm

Tell whether the students can form 0, 1, or 2 triangles from these side lengths and this angle measure and *explain why*. Note that congruent triangles are NOT considered different triangles. The endpoints of each segment must be connected. If the students cannot form any triangles from these side lengths, explain how one side length could be changed so that at least one triangle can be formed. Otherwise, construct the triangle(s).

Part D. Ms. Porter gives her students the same conditions as in part C except that she changes the angle measure to 32° and has the angle attach to the longer side length. Tell whether the students can form 0, 1, or 2 triangles from these side lengths and this angle measure and *explain why*. Note that congruent triangles are NOT considered different triangles. The endpoints of each segment must be connected. If the students cannot form any triangles from these side lengths, explain how one side length could be changed so that at least one triangle can be formed. Otherwise, construct the triangle(s).

Part E. Ms. Porter gives her students the following side length and angle measures of 57° and 72° to construct a triangle. The two angles must connect to the given side.

2 cm

Tell whether the students can form 0, 1, or 2 triangles from these angle measures and this side length and *explain why*. Note that congruent triangles are NOT considered different triangles. The endpoints of each segment must be connected. If the students cannot form any triangles from these angle measures and this side length, explain how one angle or the side length could be changed so that at least one triangle can be formed. Otherwise, construct the triangle(s).

Part F. Ms. Porter gives her students the following side lengths.

3 cm

5 cm

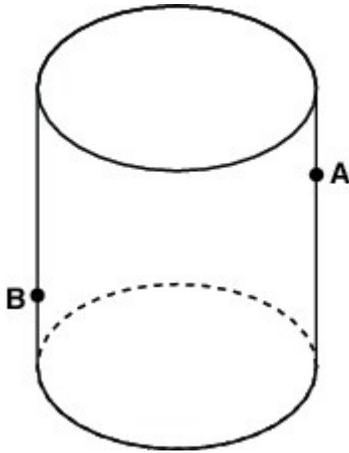
5 cm

She asks her students to use these 3 lengths plus a fourth to form the following shapes:

- a) a parallelogram that is NOT a rectangle
- b) a rectangle that is NOT a square
- c) a square
- d) an isosceles trapezoid

The endpoints of the segments must form the vertices of the new shape. If the shape cannot be constructed from these side lengths, explain why not.

26. Tom uses clay to make a model of a cylinder, like the one shown.



Part A. If a cut is made through the middle of the cylinder perpendicular to the base, what is the shape of the figure formed by the cross-section?

Part B. If a cut is made perpendicular to the base, but not through the middle of the cylinder, would the shape of the cross-section be the same or different from the one in Part A?

Part C. Tom is going to make a cut through points A and B of the cylinder, but not through the base. What is the shape of the figure formed by Tom's cut?

Part D. Identify another three-dimensional figure, other than a cylinder, that could be cut to form the shape you identified in Part C.

Use words, numbers, and/or pictures to show your work.

27. Four workers each earn the same hourly rate and were paid a total of \$45 for doing yard work.

Part A Express one worker's pay as a rational number in simplest form.

Part B Express the rational number in Part A as the product of a rational number and a whole number.

Part C Convert the rational number in Part A to a decimal using long division. Show or explain your work.

Part D If the four workers completed the yard work in 20 minutes, what is the hourly rate for each worker? Show or explain your work.

28. Olga needs to compute $3(2)+5-7$. Draw a number line and use directional arrows to show this computation. Explain where to start, how to get the intermediate results after each set of directional arrows, and identify the final answer.

29. Gordy made two errors in simplifying the expression below.

$$-\frac{4}{5}\left(\frac{3}{8}-\frac{1}{2}\right)+\frac{3}{10}\left(-\frac{1}{2}\right)$$

Step 1: $-\frac{12}{40}-\frac{4}{10}+\frac{3}{10}\left(-\frac{1}{2}\right)$

Step 2: $-\frac{12}{40}-\frac{1}{10}\left(-\frac{1}{2}\right)$

Step 3: $-\frac{12}{40}+\frac{1}{20}$

Step 4: $-\frac{6}{20}+\frac{1}{20}$

Step 5: $-\frac{5}{20}$

Step 6: $-\frac{1}{4}$

Part A Explain the error Gordy made in Step 1.

Part B Explain the error Gordy made in Step 2.

Part C Correctly simplify the expression $-\frac{4}{5}\left(\frac{3}{8}-\frac{1}{2}\right)+\frac{3}{10}\left(-\frac{1}{2}\right)$.
Show each step of your work.

30. A player earns points in different levels in a video game. Level Y in the video game triples the usual number of bonus points given to the player in addition to the regular points earned.

Part A One player earned 2,120 regular points and the usual 75 bonus points but reached Level Y. How many total points did the player receive on this level? Show or explain your work.

Part B On Level X, the bonus points were only $\frac{1}{2}$ of the tripled bonus points. In general, how does this affect the total number of bonus points a player would receive? Show or explain your work.

Part C If the player in Part A had been on Level X, how many fewer points would the player have received? Show or explain your work.

31. Garrett evaluated the expression $-3 \times \left(\frac{2}{5}\right) \times \left(-\frac{1}{4}\right) \div \left(-\frac{2}{3}\right)$. He found an answer of $-\frac{16}{5}$. Garrett's answer is not correct.

Part A Explain whether or not the sign on Garrett's answer is correct.

Part B Find the correct value of the expression. Show or explain your work.

32. A school has several vans and a bus. Each van holds 6 passengers and the bus holds 14 passengers. The number of students in each vehicle needs to equal the number of sponsors. When x represents the number

of vans, the expression $\frac{1}{2}(6x+4)$ can be used to find the total number of students riding in the vans and bus.

Part A There are 3 full vans along with the bus full of passengers going on a trip. How many students and how many sponsors are going on the trip? Show or explain your work.

Part B On the return trip home in Part A, $\frac{1}{4}$ of the students rode home with their parents. Write a new expression that would represent the **total** number of students **and** sponsors who rode the 3 vans and bus home. What is the number of students who did not ride home with their parents? Show or explain your work.

Part C The school changes its rules. In each van, $\frac{2}{3}$ of the passengers need to be students. The rest of the passengers would be sponsors. What is the number of students and the number of sponsors each van needs to hold? Show or explain your work.

33. Simplify $\frac{4 + \frac{2}{3} - \frac{1}{4}}{3\left(\frac{1}{2} + \frac{5}{6}\right)}$ Show or explain your work.

34. A teacher writes two fractions on the board.

$$\frac{7}{15} \text{ and } \frac{7}{16}$$

Part A Convert $\frac{7}{15}$ to a decimal. Show your work.

Part B Convert $\frac{7}{16}$ to a decimal. Show your work.

Part C Write a fraction with a numerator of 6 that repeats when converted to a decimal.

35.

Rock climber X can hike $11\frac{2}{3}$ feet per minute up a mountain. Use this rate to answer the following questions.

Part A Rock climber X hikes up a mountain for 30 minutes. How far, in feet, does the climber hike? Show or explain your work.

Part B Rock climber Y hiked $202\frac{1}{2}$ feet in 15 minutes. How much slower or faster is the rate for climber Y than climber X? Express your answer in feet per minute. Show or explain your work.

Part C The Roof Butte in Arizona is 9,800 feet high. How many hours would it take for climber X to hike the Roof Butte? Show or explain your work.

36. The table shows the costs of items at a refreshment stand.

**Refreshment Stand
Item Costs**

Item	Cost
apple	\$0.75
bag of popcorn	\$1.00
bottle of water	\$1.50
hot chocolate	\$0.50
pretzel	\$1.25

Part A Marc and Barb buy 2 apples, 1 bottle of water, 1 hot chocolate, and 2 pretzels. What is the total cost for these items? Show or explain your work.

Part B The total amount of money earned from the sale of items at the refreshment stand last night was \$443.00. Last night, 40 apples, 78 bags of popcorn, 128 bottles of water, and 96 hot chocolates were sold. How many pretzels were sold? Show or explain your work.

37. Dani and Emma simplified the same expression. Each solution had an error.

Dani Solution

$$\begin{aligned} & \left(-3\frac{1}{2} - 1\frac{5}{8} \right) - \left(-2\frac{1}{4} + \frac{3}{8} \right) \\ & - \left(\frac{28}{8} - \frac{13}{8} \right) - \left(-\frac{18}{8} + \frac{3}{8} \right) \\ & - \left(\frac{41}{8} \right) - \left(-\frac{18}{8} + \frac{3}{8} \right) \end{aligned}$$

$$-\left(\frac{41}{8}\right) - \left(-\frac{15}{8}\right)$$

$$-\frac{56}{8}$$

$$-7$$

Emma's Solution

$$\left(-3\frac{1}{2} - 1\frac{5}{8}\right) - \left(-2\frac{1}{4} + \frac{3}{8}\right)$$

$$\left(-\frac{28}{8} - \frac{13}{8}\right) - \left(-\frac{18}{8} + \frac{3}{8}\right)$$

$$-\left(\frac{41}{8}\right) - \left(-\frac{18}{8} + \frac{3}{8}\right)$$

$$-\left(\frac{41}{8}\right) - \left(-\frac{21}{8}\right)$$

$$-\frac{20}{8} = -\frac{5}{2}$$

$$-2\frac{1}{2}$$

Part A Explain the error in Dani's solution.

Part B Explain the error in Emma's solution.

Part C What is the correct solution to the problem? Express the solution as a mixed number and show or explain your work.

38. The table shows distances run by Jeremy and Mateo in particular amounts of time.

Running Data

	Distance (in miles)	Time (in hours)
Jeremy	$\frac{3}{4}$	$\frac{1}{6}$
Mateo	$\frac{1}{2}$	$\frac{1}{12}$

Part A What is Jeremy's running rate, in miles per hour?

Part B What is Mateo's running rate, in miles per hour?

Part C Jeremy and Mateo both plan to run 7 miles. They will run at their rates given in the table. How many hours apart should they start so that they finish at the same time?

39. Sarah raises rabbits. She uses $\frac{3}{2}$ cups of pellets a day to feed 6 rabbits.

Part A What is the unit rate of cups of pellets per rabbit? Show or explain your work.

Part B There is $\frac{1}{2}$ cup of pellets per $\frac{3}{8}$ pound of pellets. What is the unit rate of cups of pellets per pound? Show or explain your work.

40. Four workers each earn the same hourly rate and were paid a total of \$45 for doing yard work.

Part A Express one worker's pay as a rational number in simplest form.

Part B Express the rational number in Part A as the product of a rational number and a whole number.

Part C Convert the rational number in Part A to a decimal using long division. Show or explain your work.

Part D If the four workers completed the yard work in 20 minutes, what is the hourly rate for each worker? Show or explain your work.

41. A family's monthly expenses are divided in the following way:

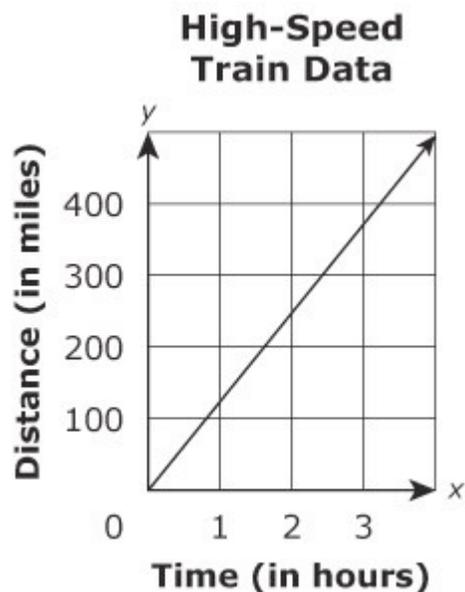
- $\frac{1}{3}$ Housing
- $\frac{1}{4}$ Food
- $\frac{1}{6}$ Utilities
- $\frac{1}{8}$ Transportation
- $\frac{1}{8}$ Miscellaneous/Other

Part A Which two expenses combined are exactly $\frac{1}{2}$ of the family's expenses? Show or explain your work.

Part B If the family spends \$300 per month on transportation, what is the total of the family's monthly expenses? Express your answer in dollars. Show or explain your work.

Part C Using your answer from Part B, what is the family's total cost for housing and food each month? Show or explain your work.

42. The linear graph below shows the distance traveled by a high-speed train in relation to time.



Part A What does the ordered pair $(3, 375)$ represent in terms of distance and time?

Part B What is the value of y for the ordered pair $(1, y)$ on the graph? Show or explain your work.

Part C Explain what y represents in terms of the context of this problem.

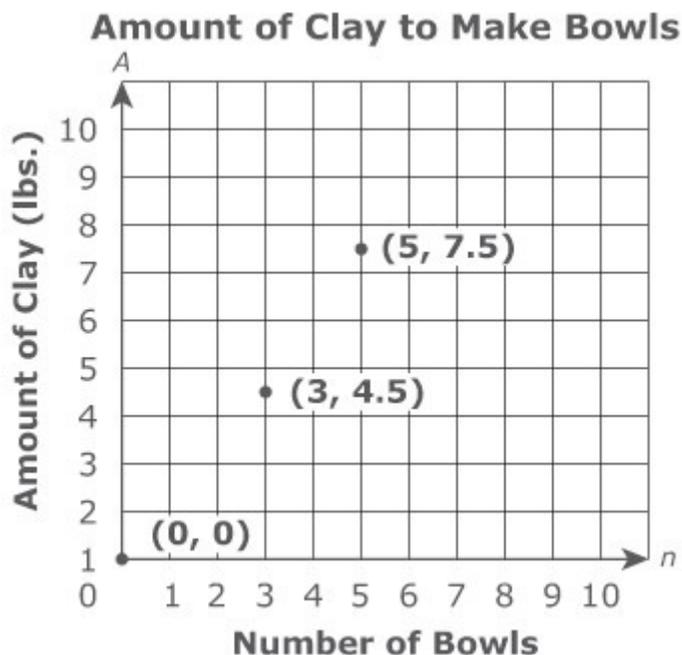
43. A collection of ribbons currently has 63 ribbons in it.

Part A A student estimated that there are 50 ribbons in the collection. What is the percent error for this estimate? Round your answer to the nearest tenth. Show or explain your work.

Part B If 35 ribbons are added to a collection of 100 ribbons and another 35 ribbons are added to a collection of 500 ribbons, what is the percent increase for each collection? Show or explain your work.

Part C Explain why the collections in Part B do not have the same percent increase even though 35 ribbons were added to each collection.

44. The art students at a school are making small bowls in pottery class. The graph shows that the amount of clay, A , is proportional to the number of bowls, n , made at a constant rate.



Part A What is the constant of proportionality (unit rate) as shown in this graph? Show or explain your work.

Part B Write an equation to represent the proportional relationship between the total amount of clay, A , and the number of bowls, n , made at this constant rate.

Part C What does the point (1, 1.5) mean in this situation?

45. Tara used a car, a motorized scooter, and a bicycle to collect data. She represented the relationship between the distance traveled from her home and the elapsed time using a table, a graph, and ordered pairs. Tara let x represent the time, in hours, and y represent the distance, in miles, from her home.

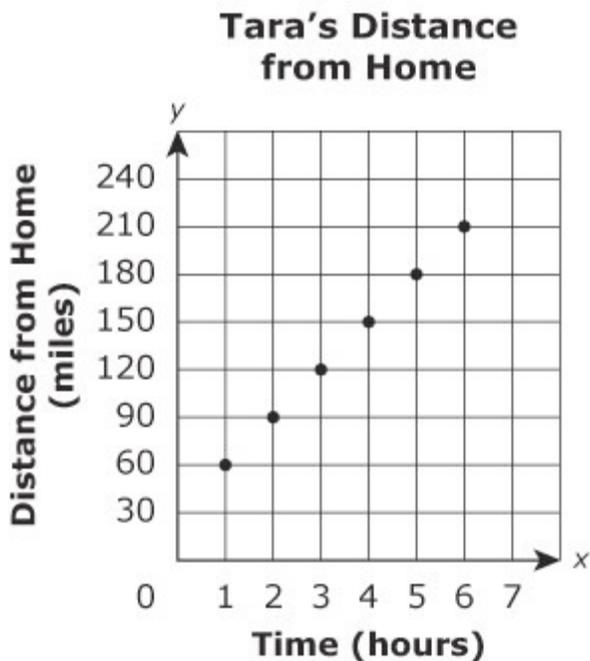
Part A Use the data Tara collected using **the car** and expressed in this table to answer the question.

Tara's Distance from Home

Time (hours) x	Distance from Home (miles) y
1	50
2	100
3	150
4	200
5	250

Is y proportional to x ? Justify your conclusion.

Part B Use the data Tara collected using the motorized scooter and graphed in the first quadrant of a coordinate plane to answer the question.



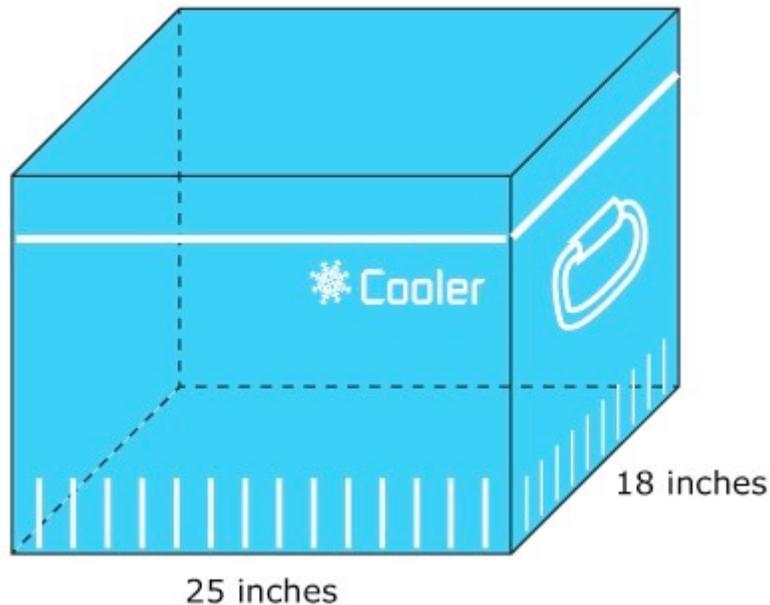
Is y proportional to x ? Justify your conclusion.

Part C This set of ordered pairs represents the data Tara collected using the bicycle.

(1, 10), (2, 20), (3, 20), (4, 40), (5, 50)

Is y proportional to x for this set of ordered pairs? Justify your conclusion.

46. A cooler can be represented as a rectangular prism. The front of the cooler has a surface area of 475 square inches. The cooler is 25 inches wide and 18 inches deep.



Part A In cubic inches, what is the volume of the cooler?

Part B In square inches, what is the total surface area of the cooler?

Part C The cooler has 15 juice boxes, 25 water bottles, and 10 cans of soda. If someone reaches into the cooler without looking, what is the probability that they will pick a can of soda?

47. The school band has 64 students. The number of students who play each instrument is shown in the table.

Students by Instrument

Instrument	Number of Students
Clarinet	15
Flute	12
Percussion	9
Saxophone	10
Trombone	4
Trumpet	13
Tuba	1

One student from the band will be selected at random to announce the order of the musical compositions for a concert.

Part A What is the probability that the student selected will be a flute player? Give your answer as a fraction reduced to lowest terms. Show or explain your work.

Part B How much more likely is it that a clarinet player will be selected than a trombone player? Give your answer as a fraction reduced to lowest terms. Show or explain your work.

Part C Which two combined instrument sections are as likely to have a student selected as the trumpet section is to have a student selected? Show or explain your work.

48. A photographer is planning a group picture of all the students at a middle school. She wants to keep each homeroom class together and arrange the students in each class, by height, from tallest to shortest. Which statement identifies the best measure for comparing and organizing the homeroom classes?
- A. Use the minimum student height from each class.
 - B. Use the maximum student height from each class.
 - C. Use the mean of the student heights from each class.
 - D. Use the range of the student heights from each class.

49. Casey has a bag of 20 marbles: 2 black, 7 blue, 5 green, 3 red, 2 white, and 1 yellow.

She will select one marble from the bag without looking, record the color of the marble, put the marble back into the bag, and mix up the marbles. She will go through this process 300 times.

Part A Casey predicts that she will choose a red marble 100 times. Is Casey's prediction close to the expected frequency? Show work that supports your answer, then explain your answer in words.

Part B Casey completes the experiment and says that she selected a green marble more often than a blue marble. Is this possible? Explain the reasoning for your answer.

50. Use two six-sided fair number cubes with faces numbered 1-6 to answer Parts A and B.

Part A Using ordered pairs, list all of the possible outcomes in the sample space for rolling the two number cubes.

Part B What is the probability of rolling a sum of 7 on the two number cubes? Express your answer as a fraction in simplest form. Show or explain your work.

