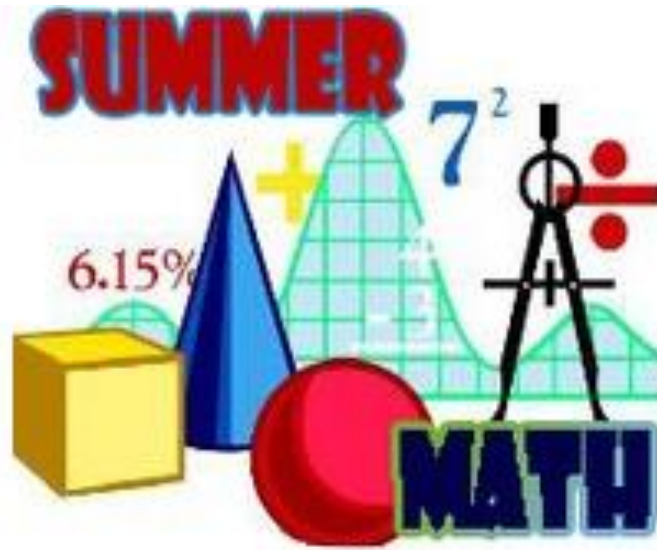# 7ᵗʰ Grade Summer Math Packet 2019

6ᵗʰ Grade Math Teacher Name_____

Favorite Math Skill_____

What you look forward to learning in 7ᵗʰ Grade

_____

Packet must be turned in the first day of school!!

Must show all work to receive credit!!

Reference Sheet
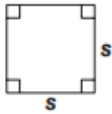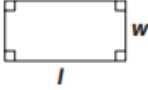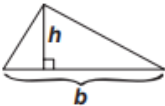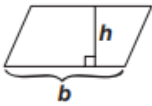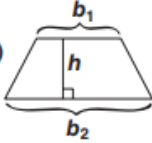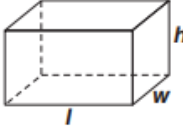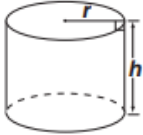
The sum of the measures of the interior angles of a triangle = 180°

Distance = rate × time

Simple Interest Formula: $A = p + prt$

   A = amount after t years; p = principal; r = annual interest rate; t = number of years

$\pi \approx 3.14$ or $\frac{22}{7}$	**Square** Area = s^2 Perimeter = **4s**	**Rectangle** Area = **lw** Perimeter = **2l + 2w**
Circle Area = πr^2 Circumference = $2\pi r$ $= \pi d$	**Triangle** Area = $\frac{1}{2}bh$	**Parallelogram** Area = **bh**

Trapezoid
 Area = $\frac{1}{2}h(b_1 + b_2)$
	Rectangular Prism
	 Volume= **lwh**
	 Surface Area=
	   2lw + 2wh + 2lh
		Cylinder
		 Volume = $\pi r^2 h$
		 Surface Area =
		   $2\pi rh + 2\pi r^2$

USE THE FOLLOWING EQUIVALENTS FOR YOUR CALCULATIONS

60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day 7 days = 1 week 12 months = 1 year 365 days = 1 year	12 inches = 1 foot 3 feet = 1 yard 36 inches = 1 yard 5,280 feet = 1 mile 1,760 yards = 1 mile	10 millimeters = 1 centimeter 100 centimeters = 1 meter 10 decimeters = 1 meter 1000 meters = 1 kilometer
8 fluid ounces = 1 cup 2 cups = 1 pint 2 pints = 1 quart 4 quarts = 1 gallon 1000 milliliters (mL) = 1 liter (L)		16 ounces = 1 pound 2,000 pounds = 1 ton 1000 milligrams = 1 gram 100 centigrams = 1 gram 10 grams = 1 dekagram 1000 grams = 1 kilogram

Simplify the expression. Identify the properties used.

   1. $4(x - 3)$ **2.** $(3 \bullet x) \bullet 7$

3. Use a formula to find the area of the figure.
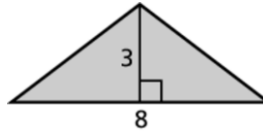
4. Tickets to a basketball game cost $4 for adults and $2 for children. Write an expression that gives the total cost for *a* adults and *c* children to attend the game. What is the total cost for a family of 2 adults and 3 children to attend the game?
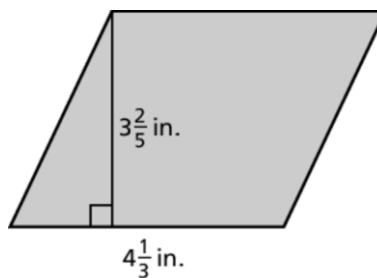
Perform the indicated operation.

  5. $\dfrac{7}{9} \times \dfrac{6}{5}$ **6.** $2\dfrac{1}{4} \div \dfrac{3}{8}$ **7.** 0.35×1.2 **8.** $0.25\overline{)7.38}$

9. Find the area of the parallelogram.

Evaluate the expression.

10. $6 + 9 \div 3$

11. $5^2 - 4 \times 2$

12. $(4 - 2)^3 - 2(3 + 1)$

13. $15 + 3(6 \div 2) - 4^2$

14. A recipe for a batch of 3 dozen chocolate chip cookies calls for 3 cups of flour, 1 cup of sugar, and 2 cups of chocolate chips. How much of each ingredient should be used to make 2 dozen cookies?

15. Find the area of the polygon with vertices of $A(0, 1)$, $B(0, 5)$, $C(4, 5)$, and $D(6, 1)$.

16. The ages of people on a jury are 41, 45, 39, 56, 48, 45, 42, 34, 47, 62, 35, and 58. Make a stem-and-leaf plot of the data.

Order the integers from least to greatest.

17. $7, 3, -2, -4, 5$

18. $-5, -1, 3, 0, -3$

19. A twelve-pack of juice costs $4.20. An eighteen-pack costs $5.40. Which is the better buy?

Write the fraction or mixed number and a percent.

20. $\dfrac{3}{8}$

21. $\dfrac{6}{5}$

22. $3\dfrac{1}{4}$

23. Chris, Mary Beth, and Allison are discussing the number of oranges grown in Florida. Chris says that approximately 14.6% of the world's oranges are grown in Florida, Mary Beth says that 292 out of every 2000 oranges are grown in Florida, and Allison says that 0.146 of the world's oranges are grown in Florida. Are they in agreement? Explain your reasoning.

24. How many vertices does a triangular prism have?

25. A pizza shop offers 30% off the price of a large pizza every Tuesday night. If the regular price is $25, what is the discounted price?

26. Write the ratio of basketballs to footballs. Explain what the ratio means.

27. You run 6 miles in 1 hour. At this rate, how long will it take you to run a marathon (approximately 26 miles)?

28. Determine the mean, median, mode(s), IQR, and range for the data.

3, 8, 6, 6, 4, 6, 9, 9, 12

29. Katie makes 70% of her shots from the free-throw line. Can you determine how many consecutive free-throws she must make in order to increase her percentage to 75%? Explain.
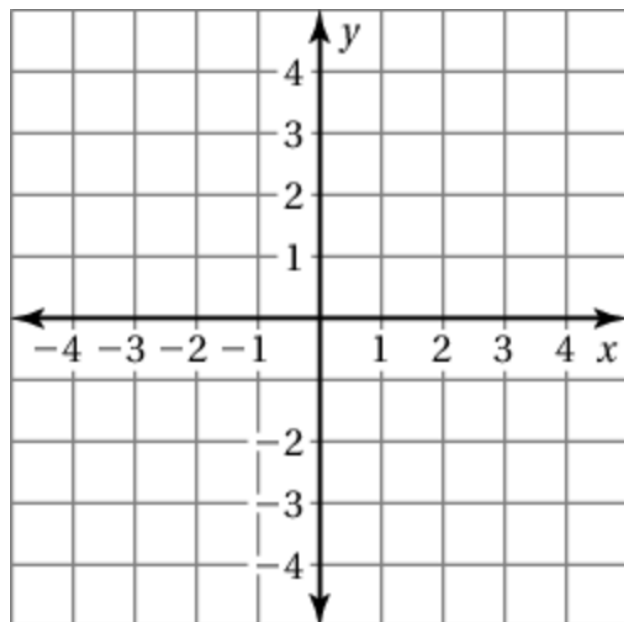
Plot the ordered pair in the coordinate plane.

30. $(3, -4)$ **31.** $(-4, 2)$

32. $(-2, 0)$ **33.** $(-3, -3)$
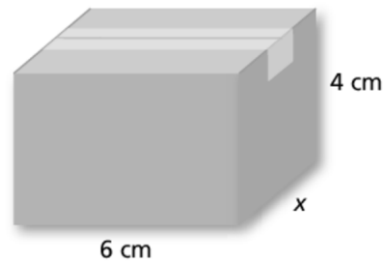

Solve the equation.

34. $s + 3 = 13$ **35.** $4c = 24$

36. A farmer builds a fence to enclose a rectangular pasture. He uses 160 feet of fence. Find the total area of the pasture if it is 50 feet long.

37. Write and solve an equation to find the width of the box if its volume is 96 cubic centimeters. Then find its surface area.
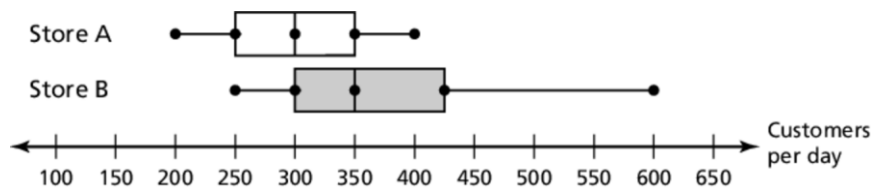

4 cm

x

6 cm

38. The prices of backpacks at a store are $22, $16, $39, $35, $19, $34, $20, and $26. Find the mean absolute deviation of the prices.

Write the word sentence as an inequality.

39. A number t is less than 7.

40. A number m is at least -3.

Use the box-and-whisker plot to answer the question.

Store A

Store B

100 150 200 250 300 350 400 450 500 550 600 650

Customers per day

41. How often does Store A have 300 or less customers per day?

42. Which store has more customers?

Find the GCF of the numbers.

43. 30, 105 **44.** 84, 90

45. Find the prime factorization of 108

46. You have piano lessons every seventh day and cooking lessons every fourth day. Today you have both lessons. In how many days will you have both lessons on the same day again?

47. The surface area of a square pyramid is 95 square inches. The side length of the base is 5 inches. What is the value of x?

x in.

5 in.
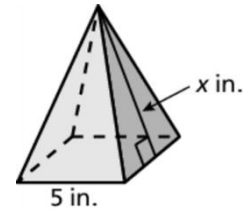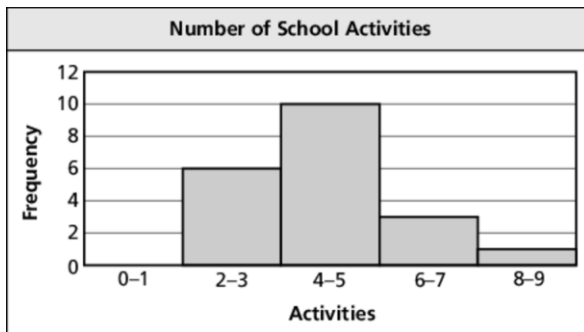
Find the missing values in the ratio table.

48.

Teachers	2	3	
Students	24		120

49.

Cups	52	36	
Quarts	13		5

Use the histogram that shows the number of school activities that students are involved in during the year.

50. Which interval contains the fewest data values? _____
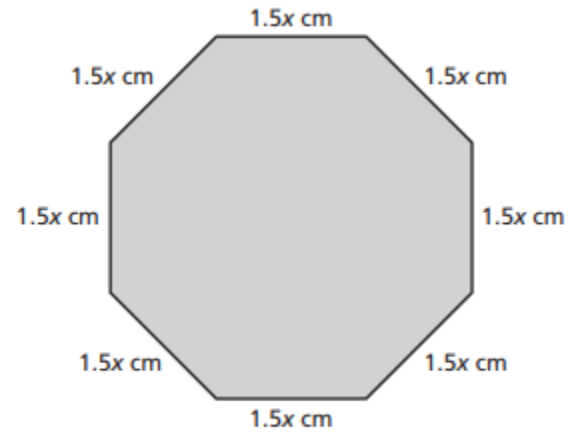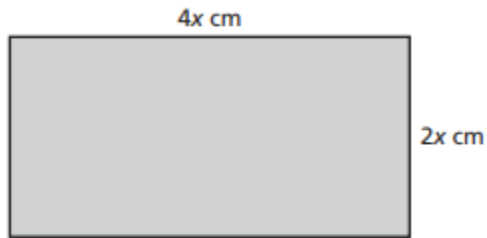
51. How many students are there? _____

52. Determine the percent of students that are involved in at least 4 or 5 activities.

Performance Tasks

Expressions and Equations
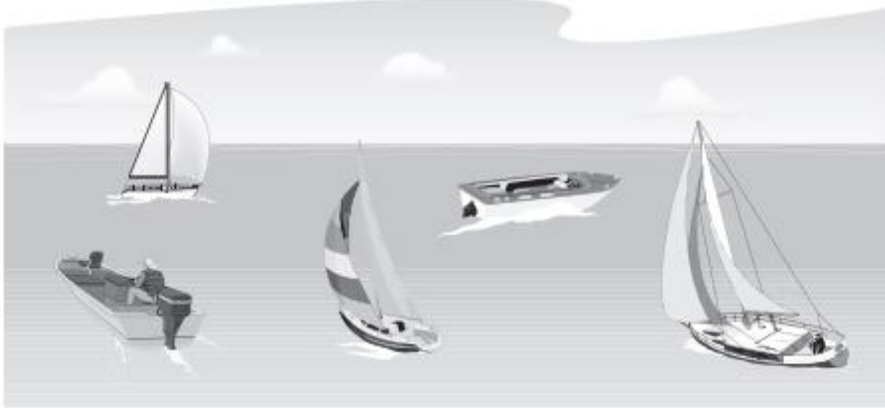
Use the rectangle and octagon below.

4x cm

2x cm

1.5x cm
1.5x cm
1.5x cm
1.5x cm
1.5x cm
1.5x cm
1.5x cm
1.5x cm

1. Write an expression for the perimeter of each figure.

2. Complete the table. What do you notice?

x	Perimeter of rectangle	Perimeter of octagon
1		
2		
3		
4		
5		
6		
7		
8		

Ratios and Proportions

1. The numbers of sailboats and motorboats in a bay are shown.

    a. Write the ratio of motorboats to sailboats in three ways. Explain what the ratios mean.

    b. Four additional motorboats enter the bay. How many additional sailboats must also enter the bay for the ratio to remain the same?

2. The ratio of the number of galleons to the number of galleys in the Spanish Armada was 5 : 1. What missing information could be used to find the total number of galleons and galleys in the Spanish Armada? Explain.


    Galleon: propelled by sails   **Galley:** propelled by rowing

Probability and Statistics

You want to know whether students in your class or your friend's class watch more movies every month. The line plots show the number of movies each student in your class and each student in your friend's class watched during the past month.

Your Class

Numbers of Movies Watched

Your Friend's Class

Numbers of Movies Watched
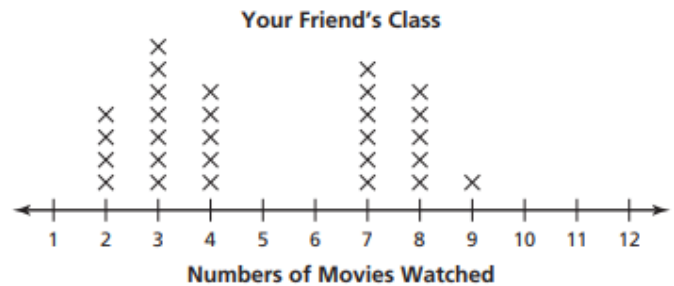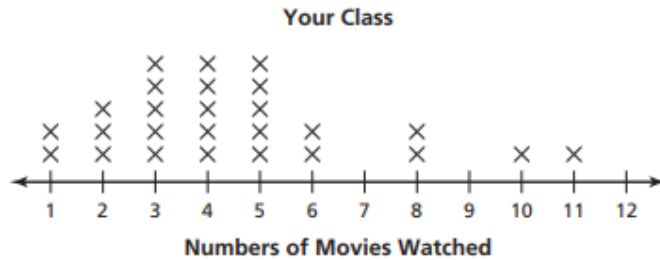
1. Compare the mean, median, and mode of the classes.

2. Which set of data do you think is more spread out? Explain.

3. Describe the distribution of the data for each class.

4. Overall, which students do you think watch more movies each month, your class or your friend's class? Explain your reasoning.