

8th Grade Summer Math Packet 2019



7th Grade Math Teacher Name _____

Favorite Math Skill _____

What you look forward to learning in 8th Grade

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

****Must show all work to receive credit!!****

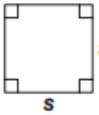
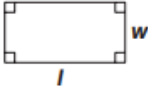

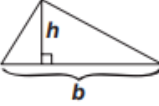
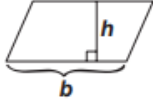
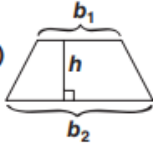
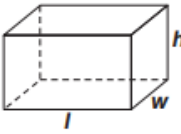
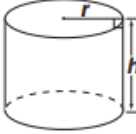
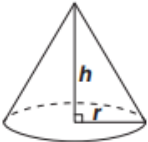
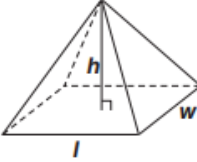
Reference Sheet

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

Distance = rate \times time

Simple Interest Formula: $A = p + prt$ Compound Interest Formula: $A = p(1 + r)^t$

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 = πr^2h Surface Area = $2\pi rh + 2\pi r^2$ 
Cone Volume = $\frac{1}{3}\pi r^2h$ 	Pyramid Volume = $\frac{1}{3}lwh$ 	

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

$$\text{Slope} = m = \frac{\text{Rise}}{\text{Run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

Order the numbers from least to greatest.

1. $|-3|, 4, -4, -|2|, -1$

2. $\frac{21}{2}, -7.5, -\frac{36}{5}, 9.5$

Simplify the expression.

3. $4 - (-3)$

4. $-2 + 15$

5. $-3(4)$

6. $27 \div (-3)$

7. $-\frac{1}{6} + \frac{7}{12}$

8. $0.24 - 1.6$

9. $2\frac{3}{5} \cdot \left(-\frac{4}{3}\right)$

10. $-24 \div 3.2$

11. On an exam you get two points for each question answered correctly, zero points for each question left blank, and lose one point for each question answered incorrectly. What is your total score on the exam if you answer 22 questions correctly, leave 7 questions blank, and answer 5 questions incorrectly?

Solve.

12. $x + 2\frac{4}{5} = 3\frac{1}{6}$

13. $-0.4a + 1.2 = 3.6$

14. A pencil costs \$0.30 and a pen costs \$0.50. You buy 10 pencils and the total cost is \$7.50. How many pens did you buy?

15. 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.

Write the word sentence as an inequality.

16. 3 less than a number t is at most 7. 17. A number m multiplied by 4 is greater than 12.

18. You and two friends are making a gift basket. You want to keep the cost below \$15 per person. Write and solve an inequality that represents the total cost of the gift basket.

Solve the inequality. Graph the solution.

19. $a - 7 \leq -4$



20. $-3m < 15$



21. If you spend at least \$50 (including shipping) at an online store, you receive a \$10 gift card. You want to purchase CDs that cost \$12 each. If shipping costs \$5, write and solve an inequality to find the number of CDs you must buy to receive the gift card.

22. The table shows the time in minutes m to download s songs. How long does it take to download one song?

Minutes	1	3	5
Songs	2	6	10

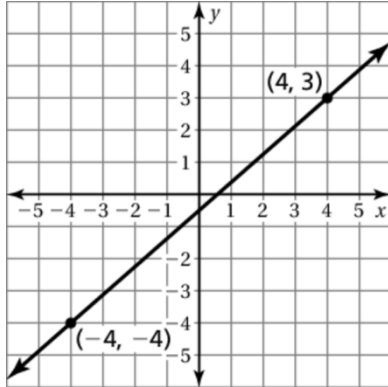
Tell whether the ratios form a proportion and prove how you know.

23. $\frac{3}{8}, \frac{13}{40}$

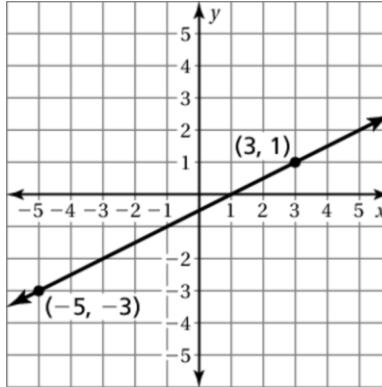
24. $\frac{7}{9}, \frac{28}{36}$

25. Solve the proportion $\frac{7}{5} = \frac{21}{x}$.

Find the slope of the line.



27.



28. If 30% of a number is 15, what is the number?

29. A store sign reads "Take 75% off the original price when you take an additional 15% off the sale price, which is 60% off the original price." Is the store's sign accurate? Explain.

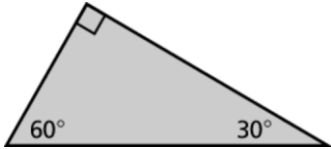
30. You put \$1200 in an account that earns 3% simple interest. Find the total amount in the account after four years.

Classify the angles as *complementary*, *supplementary*, or *neither*.

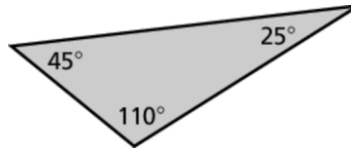
31. $23^\circ, 67^\circ$

32. $46^\circ, 144^\circ$

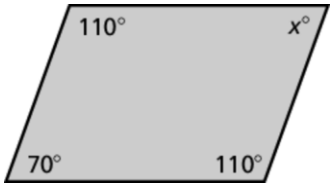
Classify the triangle and find the missing angle.



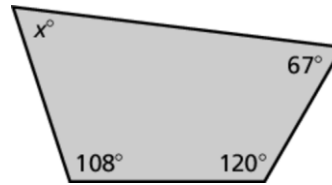
34.



Classify the quadrilateral and find the value of x .



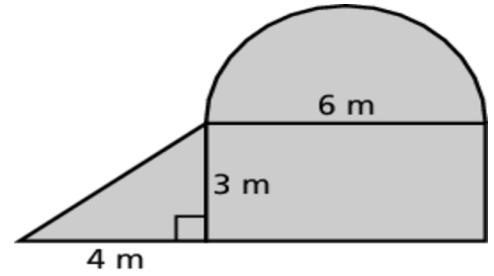
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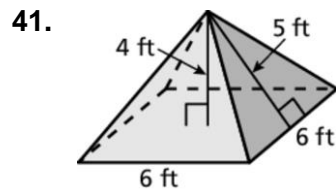
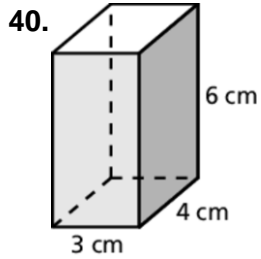
37. A scale drawing has a scale of 3 in. : 1 ft. What is the scale factor?

38. The diameter of a circle is 14 inches. Find the circumference and area. Use $\frac{22}{7}$ for π .

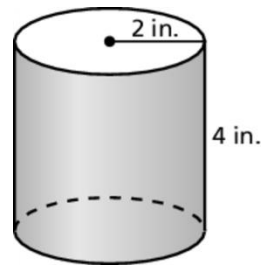
39. Find the area of the figure. Use 3.14 for π .



Find the volume and surface area of the solid.



42. Find the surface area of the cylinder. Round your answer to the nearest tenth.



43. A manufacturer wants to make a box with a volume of 24 cubic feet.

a. Sketch two possible designs for the box.

b. If the box is to be made out of wood that costs \$4 per square foot, which of your designs would be less expensive to produce? Explain.

44. The theoretical probability that you will try out for the school play is $\frac{1}{10}$. There are 22 students in your grade that try out for the school play. How many students are in your grade?

45. You flip two coins. What is the probability that you flip at least one head?

You roll a number cube twice. Find the probability of the event.

46. Rolling a 5 then a 3

47. Rolling an even then an odd

48. The probability that your ticket will be chosen in a drawing is 6%. There are 250 tickets in the drawing. How many tickets are yours?

Performance Tasks

Speedy Texting

James wants to compete in the international speed texting competition next year where participants compete on text speed and accuracy. James's current text speed is 2 characters per second. James has found that his texting speed increases at a rate of $\frac{1}{2}$ a character per second for each month that he practices.

1.
 - a. What is James's new texting speed if he practices for only 1 month? _____
 - b. What is James's new texting speed if he practices for 2 months? _____
 - c. What is his new texting speed if he practices for 3 months? _____
 - d. Write an algebraic equation that gives James's texting speed s for m months of practice.

2.
 - a. Solve the equation from question 1d to determine how many months of practice it will take before James's texting speed reaches 8 characters per second.

 - b. Explain the steps to solve your equation from question 2a.

Lydia would also like to compete in the same speed texting competition as James. She currently texts at a rate of 4 characters per second, but will only have 10 months to practice before the competition.

3.
 - a. If Lydia wants to text at least 8 characters per second, like James, then the equation $10r + 4 = 8$ could be used to model this situation. Solve this equation for r .

 - b. Explain what the variable r represents in the equation given in question 3a.

4. Consider the equation $8x + 5 = 37$. Write a real-life scenario that this equation could model.

T-Shirts

Bill and Jose are going to order T-shirts for their school clubs. The T-shirts will have the club logo printed on the front. Bill asks two local T-shirt companies to give him a price.

- Paula's Printing charges \$21.50 for each T-shirt.
- Shantay's Shirts has a one-time set-up fee of \$63 and then charges \$18 for each T-shirt.

1. Bill needs to order 30 T-shirts for his club. Which company should Bill choose to spend the least amount of money? Use math to justify your recommendation.

2. Complete the table to explore the cost of buying various numbers of T-shirts from Paula's Printing and Shantay's Shirts

Number of T-shirts	2	4	6	8					
Cost for Paula's									
Cost for Shantay's									

3. Write a linear equation that represents the cost of buying T-shirts from Paula's Printing. Identify the meaning of each variable in your equation.

4. Write a linear equation that represents the cost of buying T-shirts from Shantay's Shirts. Identify the meaning of each variable in your equation.

Phone Downloads

You are downloading three cell phone applications. The bar at the bottom of each icon shows the download progress.



1. The size of the first application is 10.8 megabytes (MB). The download is 60% complete. How much has been downloaded?
2. The size of the second application is 3.45 MB less than the first application. What is the size of the second application?
3. For the second application, 3.2 MB has been downloaded. How much is left to download?
4. For the third application, 5.25 MB has been downloaded and 2.25 MB are left. What percent of the application has already been downloaded?
5. Your phone had 26 MB of free space before the applications began downloading. Is there enough free space for all three applications? Explain your reasoning.