

2017 Summer Learning Project 8th Grade Pre-AP Math

Dear PJHS Students and Parents,

In preparation for the 2017-2018 school year, each student entering 8th grade Pre-AP Math is required to complete a summer learning project. The project focuses on the prerequisite concepts and skills necessary for student success in 8th grade Pre-AP Math.

The summer learning project is divided into 8 separate sections. A sample calendar has been provided as a guide to follow this summer to ensure that all sections are completed before the school year begins.

A copy of the assignment can be found at any time this summer on the PJHS webpage if needed.

Students will need to bring the completed assignment with them on the first day of the 2017-2018 school year to turn in for a grade to their math teacher.

If you have any questions during the summer about the project, you can email Mrs. Samantha Templin.

Her email is:

stemplin@palestineschools.org

We wish you and your family a safe, happy, healthy and educational summer!

Thank you for your continued support,

The PJHS Math Department



MAY

twenty seventeen

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29 Begin "Fractions in Context"	30	31	1	2	3

JUNE

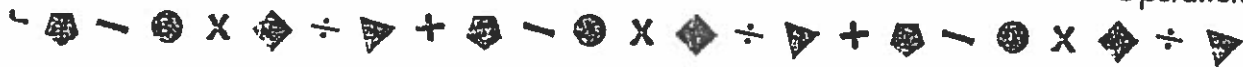
Twenty seventeen

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1	2	3
4	5 Begin "Reading and Writing Decimals"	6	7	8	9 "Reading and Writing Decimals" Completed	10
11	12 Begin "Percents, Decimals, and Fractions"	13	14	15	16 "Percents, Decimals, and Fractions" Completed	17
18	19 Begin "Find the Number"	20	21	22	23 "Find the Number" Completed	24
25	26 Begin "Critical Thinking"	27	28	29	30 "Critical Thinking" Completed	1

JULY

twenty seventeen

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
25	26	27	28	29	30	1
2	3 Begin "Identifying Geometric Terms"	4	5	6	7 "Identifying Geometric Terms" Completed	8
9	10 Begin "Nets"	11	12	13	14 "Nets" Completed	15
16	17 Begin "Area of Irregular Shapes"	18	19	20	21 "Area of Irregular Shapes" Completed	22
23	24	25	26	27	28	29



Fractions in Context

1. Karen wanted to buy a pair of jeans. They were on sale for $\frac{1}{3}$ off the original price of \$39.95. What was the discount? How much did the jeans cost?



2. A board was 3 ft. $2\frac{7}{8}$ in. long, which turned out to be $1\frac{3}{4}$ in. too long. How long was the board once $1\frac{3}{4}$ in. was taken off?



3. Molly's closet had an area of $6\frac{1}{2}$ square feet. Her mom expanded the closet, adding another $3\frac{5}{12}$ square feet. Now what is the area of her closet?

4. Copeland put his full backpack on a scale. It weighed 16 lb. He took out three books and weighed it again. It now weighed $12\frac{3}{4}$ lb. If each of the books was the same weight, how much did each weigh?



5. A birthday cake was cut into 12 pieces. Seven people each had one piece. The next day, $\frac{2}{3}$ of the remaining cake was eaten. What portion of the original cake was left?





Reading and Writing Decimals

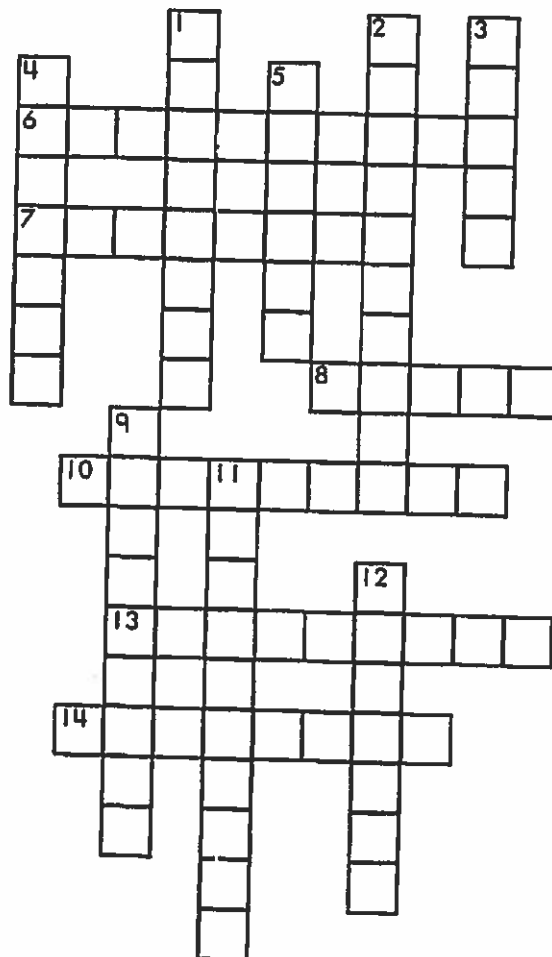
► Write the numeral for each number. (Hint: Decimal points take up their own square and leading zeros before a decimal are not included.)

DOWN

1. thirty-two and sixty-seven thousand, ninety-four hundred-thousandths
2. nine hundred eighteen and four hundred seventy six thousand, six hundred thirty-two millionths
3. two and two hundred ninety-nine thousandths
4. five hundred eight thousand, fifty-six millionths
5. seventeen hundred-thousandths
9. seven hundred five and thirty thousand, six hundred thirty-six hundred-thousandths
11. six hundred ten and two thousand, three hundred twelve millionths
12. seventy-four and nine thousand, three hundred one ten-thousandths

ACROSS

6. five hundred twenty-four and one hundred three thousand, eight hundred twelve millionths
7. eighty-seven and seventy-five thousand, thirty-four hundred-thousandths.
8. six thousand, three hundred thirty-four ten-thousandths
10. ten and six hundred eight thousand, two hundred eleven millionths
13. thirty-seven and four thousand, eight millionths
14. thirty-six and nine thousand, nine hundred ninety-two hundred-thousandths





Percents, Decimals, and Fractions

Percent (%) means "per hundred." It is a ratio that compares a number to 100. It is the number of hundredths.

Fraction to Decimal
The fraction bar means divide.

$$\frac{3}{5} = 3 \div 5$$

$$\begin{array}{r} 0.6 \\ 5 \overline{)3.0} \\ \underline{30} \\ 0 \end{array}$$

Decimal to Fraction
Write the numeral as a fraction and reduce.

$$0.35 = \text{thirty-five hundredths} = \frac{35}{100} = \frac{7}{20}$$

$$0.015 = \text{fifteen thousandths} = \frac{15}{1,000} = \frac{3}{200}$$

Percent to Decimal
Move the decimal two places to the left.

$$\underline{42}\% = 0.42$$

$$\underline{1.87}\% = 0.0187$$

Decimal to Percent
Move the decimal two places to the right.

$$0.\underline{08} = 8\%$$

$$0.\underline{73} = 73\%$$

► Complete the table.

	Percent	Decimal	Fraction
1.	50%		
2.		0.8	
3.			$\frac{1}{3}$
4.	$16\frac{2}{3}\%$		
5.		0.02	
6.			$\frac{1}{8}$
7.	$2\frac{1}{2}\%$		
8.		0.725	
9.			$\frac{2}{5}$



Find the Number

► Use the clues to find the number.



1. There are four different digits.
 The hundreds digit is double the even thousands digit.
 The sum of the digits is 14.
 The ones digit is one more than the hundreds digit.

2. There are four different digits.
 The thousands digit (the only prime) is one less than the hundreds digit.
 The number formed by adding the tens and ones is double the hundreds digit.
 The ones digit is one less than the thousands digit.

3. There are four different digits.
 The ones digit is the largest digit and the square of the tens digit.
 The hundreds digit is greater than the thousands digit.
 The sum of the digits is 15.

4. There are four different digits.
 The hundreds digit is half the thousands digit.
 The ones digit is 2 less than the sum of the thousands and hundreds digits.
 The sum of the digits is 15.

5. There are four different digits.
 There are no zeros.
 The tenths digit is double the ones digit.
 The hundredths digit is one less than the tenths digit.
 The sum of the digits is 14.

_____ . _____

6. There are four different digits.
 There are no zeros or twos.
 The tens digit is a multiple of 2, the ones digit is a multiple of 3, the tenths digit is a multiple of 4, and the hundredths digit is a multiple of 5.
 The sum of the digits is 18.

_____ . _____



Critical Thinking

► Be a "critical problem solver" as you try to solve the following problems. The problems may not be as difficult as they initially appear. Look at the problem from a different point of view. There may be unnecessary information.

1. Booky, the bookworm, burrowed in a straight line from the last page of Vol. 1 to the first page of Vol. 2 of a collection kept in perfect order on a shelf. How far did he burrow if the bindings are each $\frac{1}{8}$ inch thick and the pages of each book are 2 inches thick?
2. Two truckers drove from Dayton to Toledo and back. The first trucker drove to Toledo at 50 mph and returned to Dayton at 60 mph. The second trucker drove to Toledo and back at 55 mph. If the round trip is 300 miles, which driver took longer to make the round trip?
3. You are trying to walk to school on a very icy sidewalk. The school is 100 yards from your house. For every step you take (1 ft.), you slide back 2 ft. You decide it is hopeless, so you turn around and go home. What happens?
4. A test track for new cars is one mile around. For the first lap, the driver averages 30 mph. How fast does the car have to travel a second lap to average 60 mph for the two laps?
5. Mary noticed that it takes 6 seconds for the town clock to strike 6:00. At lunch it takes more than 12 seconds to strike 12:00. If the clock has not slowed down, how long does it take for the clock to strike?
6. A water lily doubles itself each day. From the time it was placed in a pond until the surface of the pond (600 sq. ft.) was completely covered took 30 days. How long did it take for the pond to be half-covered?



Identifying Geometric Terms

▶ Write the letter of the shape next to its correct name.

_____ 1. Perpendicular Lines

_____ 2. Pyramid

_____ 3. Cylinder

_____ 4. Parallel Lines

_____ 5. Intersecting Lines

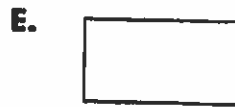
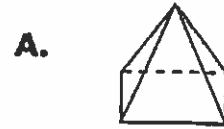
_____ 6. Sphere

_____ 7. Parallelogram

_____ 8. Cone

_____ 9. Right Triangle

_____ 10. Prism

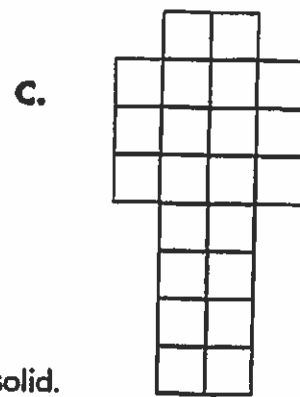
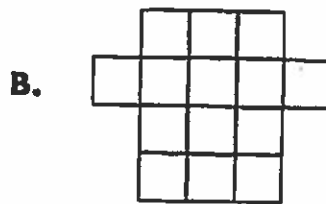
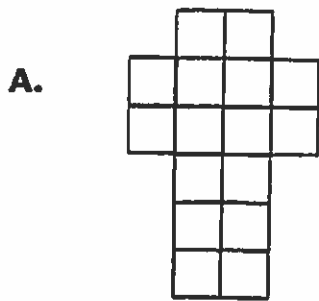
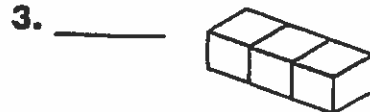
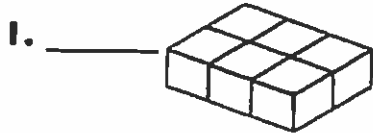




Nets

A **net** is a pattern that can be folded to cover a solid figure. The area of the unfolded net equals the surface area of the solid figure.

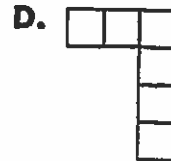
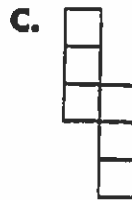
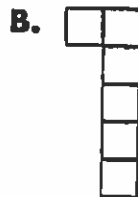
► Match the net with its solid.



► If each square represents 1 cm², find the surface area of each solid.

4. Area #1 = _____ cm² 5. Area #2 = _____ cm² 6. Area #3 = _____ cm²

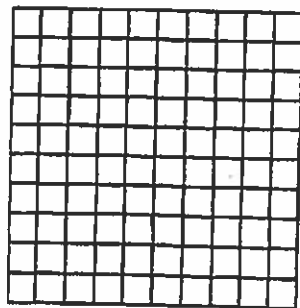
7. Which pattern is a net for a cube?



8. Draw a net on the grid for the rectangular prism shown. Then calculate its surface area.



Net:



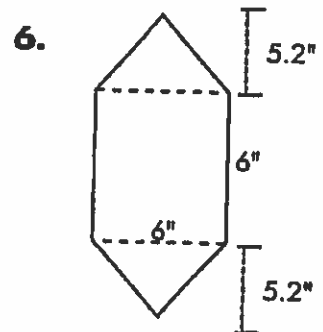
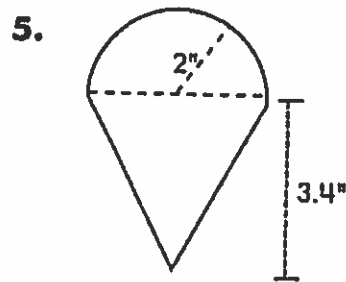
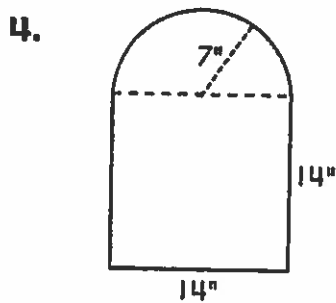
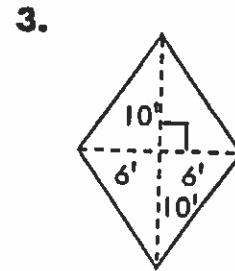
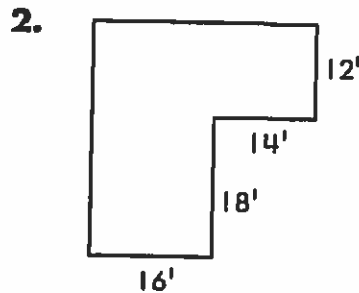
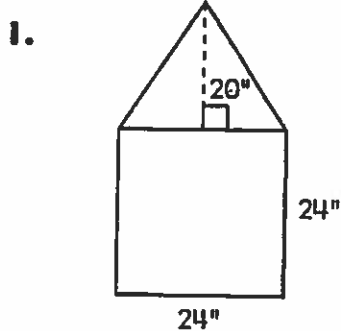
Area:



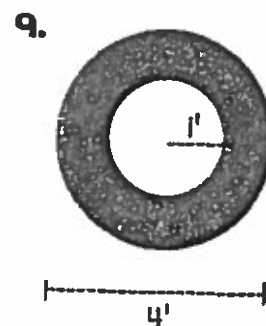
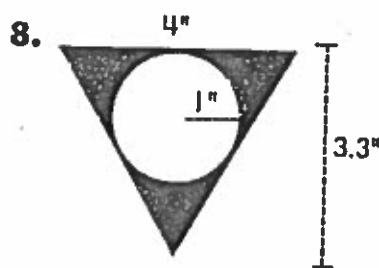
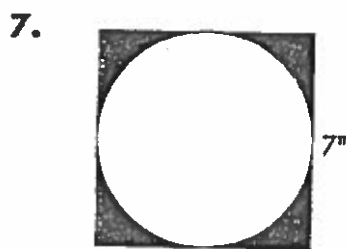
Area of Irregular Shapes

Area_{rectangle} = $l \times w$; Area_{triangle} = $\frac{1}{2} bh$; Area_{circle} = πr^2

► Divide the figures below into rectangles, triangles, and circles to find the areas.



► Add or subtract areas to find the area of the shaded regions.



10. How much greater is the area of a 4-inch square than a 4-inch diameter circle?
