Candor NAME_____

7th Grade
Math Review Packet

- This packet is designed to help you retain the information you learned in 6th grade.
- It will be most helpful if you work on it gradually throughout the summer to keep up your skills.
- The completed packet (*with all work attached*) is to be turned in the **first day of school.**
    - In addition to a homework grade, students prepared on that first day of class will receive 2 homework passes.

Hope you all have a wonderful summer!

Mrs. Wellnitz

Under

To divide a decimal by a whole number, first place a decimal point in the quotient directly above the decimal point in the dividend. Then divide the same way you divide whole numbers. Sometimes you must write leading zeros after the decimal point in the quotient.

$$\begin{array}{r} 4.5 \\ 9\overline{)40.5} \\ 36 \\ \hline 45 \\ 45 \\ \hline \end{array} \qquad \begin{array}{r} 0.05 \\ 37\overline{)1.85} \\ 1\,85 \\ \hline \end{array}$$

Divide. Write leading zeros in the quotient if necessary.

5. $13\overline{)75.599}$

6. $22\overline{)12.342}$

7. $63\overline{)0.693}$

8. $52\overline{)10.452}$

Solve.

1. Pak Chuen bought a new snowboard for $210.88. He paid for it in 8 equal payments. How much was each payment?

2. A monthly lift pass at Sneak Peak costs $145.50 and is good for 30 days. If Pak Chuen used it every day for a month, what would be the cost per day?

To divide a decimal by a decimal, follow these steps to form a simplified problem.

1. Move the decimal point to make the divisor a whole number.
2. Move the decimal in the dividend the same number of places. You may need to write a zero in the dividend.
3. Place the decimal point in the quotient and divide. Remember to write leading zeros if necessary.

Step 1	Step 2	Step 3
$0.15\overline{)1.2}$	$15.\overline{)1.20}$	$15.\overline{)120.}$
		7.5
		112
		80
		80

Divide until there is no remainder. Place zeros where they are needed.

1. $0.4\overline{)3.5}$
2. $0.8\overline{)0.28}$
3. $1.5\overline{)0.6}$
4. $2.4\overline{)5.4}$

Solve.

1. A sailboat traveled 60.15 kilometers up a river in 7.5 hours. What was the average distance per hour?
2. A boat is cruising at a speed of 8.3 kilometers per hour. How long will it take to travel a distance of 8.715 kilometers?

To add mixed numbers, first find equivalent fractions with like denominators. Then add, first the fractions and then the whole numbers. Sometimes you must regroup a sum in order to write it in lowest terms.

$$1\frac{5}{6} = 1\frac{10}{12}$$
$$+\,2\frac{11}{12} = 2\frac{11}{12}$$
$$3\frac{21}{12} = 4\frac{9}{12} = 4\frac{3}{4}$$

Add. Write each sum in lowest terms.

1. $3\frac{3}{5} + 2\frac{1}{10}$

2. $9\frac{1}{4} + 8\frac{1}{6}$

3. $2\frac{2}{16} + 1\frac{7}{8}$

4. $6\frac{2}{3} + 4\frac{7}{12}$

9. $2\frac{2}{12} + 2\frac{7}{18}$

10. $6\frac{5}{9} + 4\frac{1}{2}$

11. $3\frac{7}{10} + 5\frac{1}{4}$

12. $1\frac{3}{24} + 2\frac{3}{16}$

Solve.

1. Bert skied trails that were $2\frac{1}{5}$ miles, $3\frac{3}{10}$ miles, and $5\frac{1}{2}$ miles long. How many miles did he ski in all?

2. Bert skied for $1\frac{3}{4}$ hours Friday night, $5\frac{1}{8}$ hours Saturday, and $3\frac{1}{6}$ hours Sunday afternoon. How many hours did he spend skiing that weekend?

To find a fraction of a whole number or a mixed number, first change the number to a fraction. If both numbers are mixed numbers, change both to fractions.

$\frac{5}{6}$ of $10 = \frac{5}{6} \times \frac{10}{1} = \frac{5 \times \cancel{10}^{5}}{\cancel{6}_{3} \times 1} = \frac{25}{3} = 8\frac{1}{3}$ $\qquad$ $\frac{2}{3}$ of $2\frac{3}{4} = \frac{2}{3} \times \frac{11}{4} = \frac{\cancel{2}^{1} \times 11}{3 \times \cancel{4}_{2}} = \frac{11}{6} = 1\frac{5}{6}$

Multiply. Use the shortcut if possible. Write each product in lowest terms.

7. $\frac{4}{5} \times 60 =$

8. $\frac{4}{5} \times 5\frac{5}{8} =$

9. $7\frac{8}{9} \times 2\frac{2}{5} =$

10. $2\frac{2}{3} \times 7\frac{6}{7} =$

11. $\frac{4}{9} \times 12 =$

12. $4\frac{5}{9} \times 6\frac{3}{10} =$

Solve. Write each answer in lowest terms.

1. Ms. Tran has $\frac{1}{3}$ of a tank of gas in her car. If the tank holds $14\frac{1}{3}$ gallons, about how much gas does she have?

2. The trip to work takes Ms. Tran $\frac{7}{12}$ of an hour. If she makes this trip 10 times a week, how much time does she spend commuting?

To divide mixed numbers, first change them to fractions. Then divide by multiplying by the reciprocal of the divisor.

$3\frac{1}{2} \div 1\frac{3}{4} = \frac{7}{2} \div \frac{7}{4} = \frac{\overset{1}{7}}{\underset{1}{2}} \times \frac{\overset{2}{4}}{\underset{1}{7}} = 2$ $\quad$ $1\frac{3}{5} \div 2\frac{2}{3} = \frac{8}{5} \div \frac{8}{3} = \frac{\overset{1}{8}}{5} \times \frac{3}{\underset{1}{8}} = \frac{3}{5}$

Divide. Write each answer in lowest terms.

7. $2\frac{4}{5} \div 1\frac{3}{4} =$

8. $5 \div 1\frac{7}{8} =$

9. $2\frac{4}{9} \div 2\frac{3}{4} =$

10. $3\frac{3}{8} \div 12 =$

11. $4\frac{1}{6} \div 1\frac{1}{4} =$

12. $6\frac{2}{5} \div 2\frac{4}{5} =$

Solve. Write each answer in lowest terms.

1. The Wing family has a tailor shop. Mrs. Wing spent $2\frac{3}{4}$ hours replacing broken zippers today. If it takes her $\frac{1}{4}$ hour to do one, how many zippers did she replace?

2. Mr. Wing has 36 yards of wool fabric. A sports jacket takes $1\frac{4}{5}$ yards to make. How many jackets could Mr. Wing make with the fabric?

A **one-step equation** contains one operation. To solve it, use the inverse operation on both sides of the equation.

$x + 2 = 9$	$y - 15 = 45$	$2x = 6$	$\frac{y}{4} = 2.5$
Subtract 2 from each side.	Add 15 to each side.	Divide each side by 2.	Multiply each side by 4.
$x + 2 = 9$ $-2 \quad -2$ $x = 7$	$y - 15 = 45$ $+15 \quad +15$ $y = 60$	$\frac{2x}{2} = \frac{6}{2}$ $x = 3$	$\frac{y}{4} \cdot 4 = 2.5 \cdot 4$ $y = 10$

Solve each equation.

1. $x + 15 = 31$

2. $y - 2 = 7$

3. $6m = 90$

7. $6.75 + b = 7.5$

8. $\frac{n}{12} = 10$

9. $r + 21 = 24$

Write an equation for each problem and solve.

1. The sum of a and 35 is 100. What is a?

2. The product of x and 4 is 100. What is x?

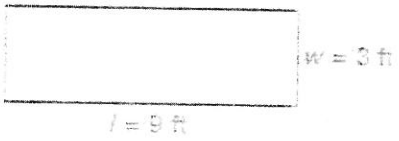
The area (A) of a polygon is the number of **square units** (ft^2) it takes to cover it.

To find the area of a rectangle, multiply the length times the width.

$A = lw$

$A = 9 \cdot 3$

$A = 27\ ft^2$

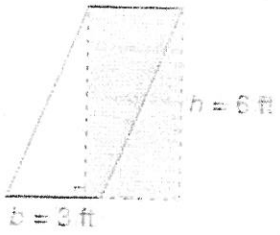


To find the area of a parallelogram, multiply the base times the height. The height is the **altitude**, or distance between the bases.

$A = bh$

$A = 3 \cdot 6$

$A = 18\ ft^2$



Solve each problem.

1. A rectangular dance floor is 30 feet wide and 70 feet long. What is the area of the dance floor?

2. A parking lot is a parallelogram with a base of 600 yards and a height of 200 yards. What is its area?

3. Logan County is a square. It has a side that is 15.4 miles long. What is its area?

4. A desk is 30 inches wide and 54 inches long. What is the area of the desktop?

5. A kitchen countertop is a parallelogram with a base of 80 inches and a height of 42 inches. What is the area of the countertop?

6. A square ceramic tile has an area of 20.25 square inches. How long is one side?

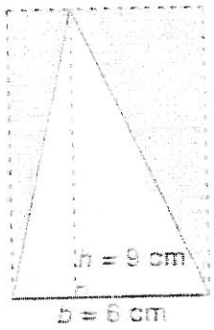
To find the area of a triangle, multiply $\frac{1}{2}$ times the base times the height.

$A = \frac{1}{2}bh$

$A = \frac{1}{2} \cdot 6 \cdot 9$

$A = \frac{1}{2}(54)$

$A = 27 \text{ cm}^2$



To find the area of a trapezoid, multiply $\frac{1}{2}$ times the sum of the bases times the height.

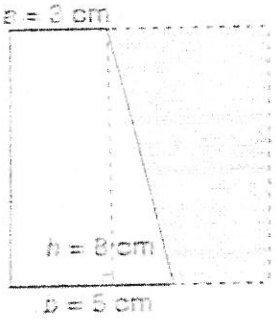
$A = \frac{1}{2}(a + b)h$

$A = \frac{1}{2} \cdot (3 + 5) \cdot 8$

$A = \frac{1}{2} \cdot (8) \cdot 8$

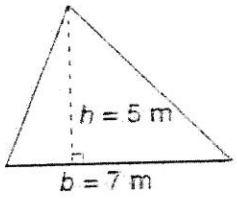
$A = \frac{1}{2} \cdot 64$

$A = 32 \text{ cm}^2$



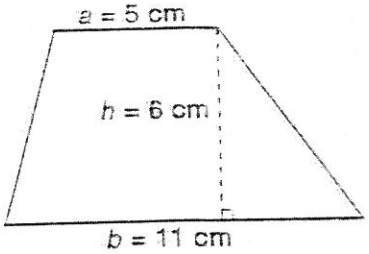
Find the area of each figure.

1.



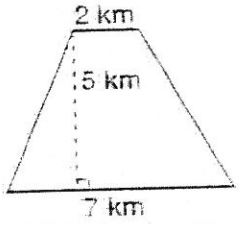
$A =$ _____

2.



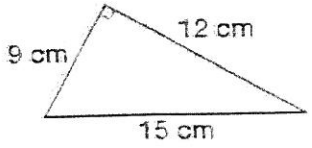
$A =$ _____

4.



$A =$ _____

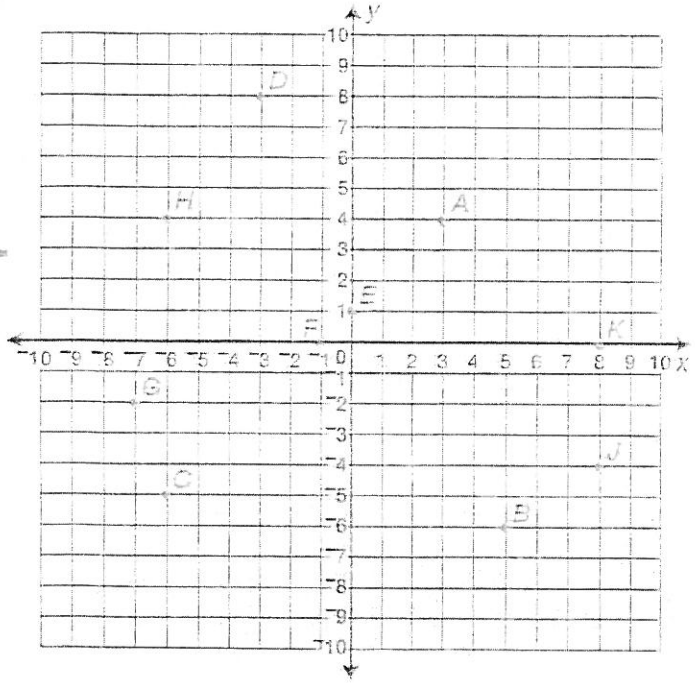
5.



$A =$ _____

An **ordered pair** of integers, such as (2,3), names the location of a point on a **coordinate plane.**

The first integer names the location on the *x*-axis. The second integer names the location on the *y*-axis. The axes intersect at the **origin** (0,0) and divide the plane into four **quadrants.**

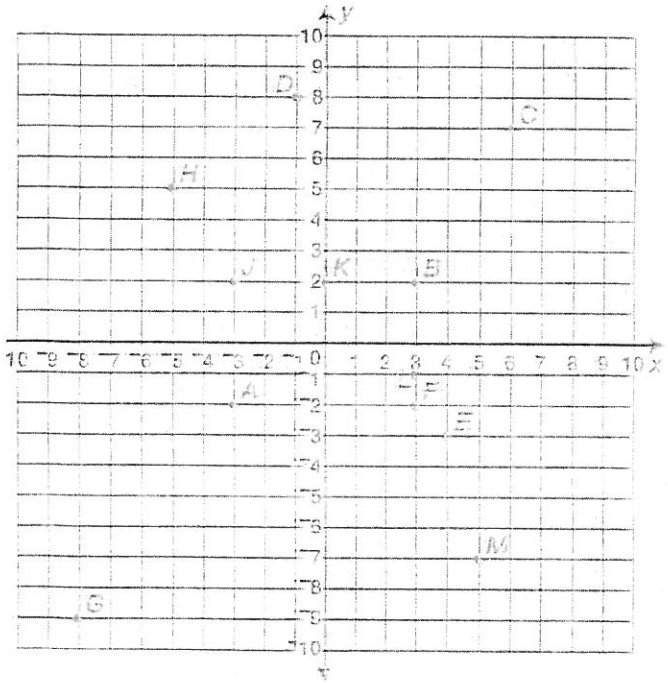


Name the ordered pair for each point.

1. *A* _____
2. *B* _____
3. *C* _____
4. *D* _____
5. *E* _____

Name the point for each ordered pair on the coordinate plane below.

1. (6,7) _____
2. (3,-1) _____
3. (0,2) _____
4. (-5,5) _____
5. (-3,-2) _____
6. (-3,2) _____



1 Data

- A **table** is an organized display of **data,** or information.

  This table shows one student's scores on some math tests.

BETHANY'S MATH SCORES	
Test	*Score*
1	86
2	78
3	88
4	78
5	90

To find the **mean,** or average, of a set of data, add the values and divide the sum by the number of values.

What is Bethany's mean test score?

$$86 + 78 + 88 + 78 + 90 = 420$$

$$420 \div 5 = 84$$

Bethany's mean test score is 84.

- To find the **median** in a set of data, first arrange the data in order from smallest to largest. Then look for the number in the middle.

What is Bethany's median test score?

78, 78, (86), 88, 90

Bethany's median score is 86.

Had there been an even number of scores, the median would have been the arithmetic mean of the 2 middle scores.

To find the **mode** of a set of data, look for the value that appears most often.

78, 78, 86, 88, 90

In this set of test scores, the score of 78 appears twice and the rest of the scores appear only once each. So the mode of Bethany's scores is 78.

Remember—
Tables contain data in columns, which go up and down, and rows, which go from left to right. Be sure to look in the correct row and column for the data you need to solve a problem.

The **range** of a set of data is the difference between the largest and smallest values.

highest score = 90

lowest score = 78

90 − 78 = 12

The range of the scores is 12 points.

The word ***median*** means *middle*. There should be an equal number of scores to the left and right of the median.

If there is an even number of scores, the median is the mean of the two middle scores.

1, 2, 3, 4

2 + 3 = 5

5 ÷ 2 = 2.5

The median is 2.5.

A set of data has no mode if each value occurs only once.

Read each problem. Circle the letter of the best answer.

1 This set of data shows the number of runs-batted-in (RBI) by five top players on the seventh-grade baseball team.

32, 28, 20, 33, 22

How many of the players were above the mean number of RBIs?

A one
C three
B two
D four

Did you choose C? That's correct. First find the mean. Add the values: 32 + 28 + 20 + 33 + 22 = 135. Divide: 135 ÷ 5 = 27. Compare the mean to the values: 32, 28, and 33 are greater than 27.

2 In question 1, how does the mean compare to the median RBIs?

F It's 1 less.
H It's the same.
G It's 1 more.
J It's 5 less.

Use this table to answer questions 3 and 4.

TREES SOLD AT A GARDEN CENTER

Kind of Tree	*Price*	*Number Sold*
Red Maple	$22	6
Pin Oak	$36	4
Sweet Gum	$45	3
Blue Spruce	$37	4

3 What is the mean price of a tree?

A $23
C $35
B $28
D $140

4 Which kind of tree was the most money taken in on?

F Red Maple
H Sweet Gum
G Pin Oak
J Blue Spruce

Use this table to answer questions 5–8.

SAILING SHIPS

Name of Ship	*Length in Feet*
Europa	185
Faire Jeanne	110
Grand Nellie	65
Jolly Rover	60
Pride of Many	65

5 How much longer is the *Faire Jeanne* than the *Jolly Rover?*

A 50 feet
C 75 feet
B 55 feet
D 175 feet

6 What is the range of the lengths of the ships?

F 25 feet
H 97 feet
G 65 feet
J 125 feet

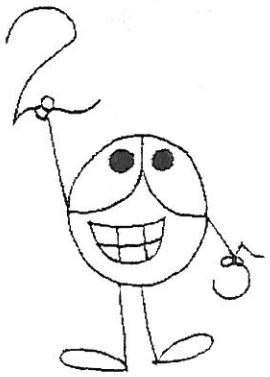
7 The *N.E. Sagres* is a 293-foot-long sailing ship. What fraction of the ships in the table are less than half the length of the *N.E. Sagres?*

A $\frac{1}{5}$
C $\frac{3}{5}$
B $\frac{2}{5}$
D $\frac{4}{5}$

8 Which statement about the lengths of the ships in the table is true?

F The median is greater than the mean.
G The mean and median are the same.
H The mode is greater than the mean.
J The median and the mode are the same.

2.6 Greatest Common Factor (GCF) Least Common Multiple (LCM)



GCF/LCM

Terminology	Description	Procedure/Example
Greatest Common Factor (GCF)	the largest factor a given group of numbers has in common	Step 1: List the factors of each number in the given group. Step 2: Search for the greatest common factor. For example: Factors of 30: 1, (2), 3, 5, 6, 10, 15, 30 Factors of 16: 1, (2), 4, 8, 16 Two is the greatest common factor.
Least Common Multiple (LCM)	the smallest positive integer a given group of numbers can each divide into without a remainder	Step 1: List several multiples of each number in the given group. Step 2: Search for the first non-zero multiple they have in common. For example: Multiples of 6: 6, 12, 18, (24), 36, 42, 48 Multiples of 8: 8, 16, (24) Twenty-four is the least common multiple.

⊛ GCF - If two numbers do not have GCF greater than 1 the pair is called relatively prime.

Our Turn

Q:

1 What is the greatest common factor (GCF) of 24 and 30?

2 What is the least common multiple (LCM) of 24 and 30?

A:

1 List the factors of 24 and 30

Factors of 24: 1, 2, 3, 4, (6), 8, 12, 24

Factors of 30: 1, 2, 3, 5, (6), 10, 15, 30

The GCF is 6

2 List several multiples of 24 and 30

Multiples of 24: 0, 24, 48, 72, 96, (120), 144

Multiples of 30: 0, 30, 60, 90, (120), 150

The LCM is 120

⊛ Remember: The LCM is a positive integer, therefore 0 is not the LCM.

Your Turn

Find the GCF of each of the following pairs of numbers.

1 12 and 30

2 18 and 50

3 24 and 40

4 13 and 52

5 100 and 250

Find the LCM of each of the following pairs of numbers.

6 12 and 30

7 9 and 10

8 8 and 24

9 3 and 7

10 4 and 6

11 What is the greatest common factor (GCF) of the numbers 26 and 39?

A 1
B 3
C 13
D 23

12 If the factors of every positive integer were listed respectively, what number would be on every list?

F 0
G 1
H 2
J 10

13 If a list was made of all the factors of 24 and another list of all the multiples of 24, what number would be on both lists?

A 0
B 1
C 3
D 24

14 What is the least common multiple (LCM) of 2, 6, 12, and 24?

F 2
G 18
H 24
J 36

15 If the multiples of all the positive integers were listed respectively, what number is a multiple of every integer?

A 0
B 1
C 10
D 100