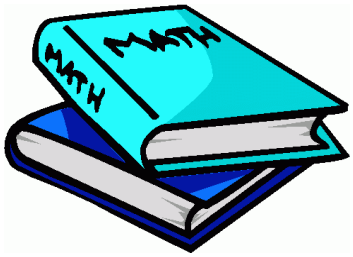
Name: _____



Rising Math 7

Summer

Packet 2019

When you see this picture, that means DO NOT use a calculator on that page!

You must show work to get credit!

Suggested Pacing:

Week	Dates	Page(s)*
1	June 10-14	none
2	June 17-21	2-3
3	June 24-28	4-5
4	July 1-5	holiday
5	July 8-12	6
6	July 15-19	7
7	July 22-26	8-9
8	July 29 - Aug 2	10
9	August 5-9	11-12
10	August 12-16	13-14

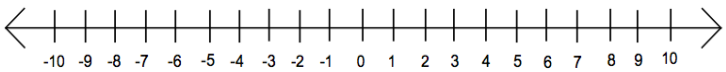
*pages 11 and 13 are notes pages

Comparing Integers/Absolute Value

Use <, >, or = to answer the following.

1) $8 \bigcirc -8$	2) $0 \bigcirc -3$
3) $-51 \bigcirc -16$	4) $\lvert -4 \rvert \bigcirc 4$
5) $-12 \bigcirc -20$	6) $-3 \bigcirc \lvert -4 \rvert$

Put the integers in ascending order.



7) $-4, 5, -2, 1$	8) $-2, -7, -10, -3$
9) $-14, 12, \lvert -17 \rvert, 5$	10) $-3, \lvert -4 \rvert, -2, \lvert 5 \rvert$

Absolute Value is the distance a number is from zero (always positive).
For example $\lvert -4 \rvert = 4$; $\lvert 5 \rvert = 5$

1) $\lvert -2 \rvert =$	2) $\lvert 8 \rvert =$
3) $\lvert -5 \rvert =$	4) $\lvert 12 \rvert =$
5) $\lvert -21 \rvert =$	6) $\lvert -83 \rvert =$
7) $\lvert 100 \rvert =$	8) $\lvert -142 \rvert =$
9) $\lvert -231 \rvert =$	10) $\lvert 250 \rvert =$

Integer Operations: add, subtract, multiply, divide

1. 9 - 4	2. 5 - 9
3. -7 - 4	4. -8 + 3
5. 9 - (-6)	6. 8 + (-5)
7. $8 \bullet 0$	8. $96 \div -2$
9. -12 x -12	10. $\frac{-54}{3}$
11. 8 x 5	12. $\frac{52}{-4}$
13. -6 x 10 x 3	14. $\frac{-40}{-10}$

Fraction Review – ALWAYS REDUCE and SHOW WORK!!

Reducing Fractions Example

$\frac{24}{36}$ Both even $\div 2$ or $\div 4$ $\quad \frac{24 \div 4}{36 \div 4} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$ Keep going

1) $\frac{12}{20}$	2) $\frac{7}{21}$	3) $\frac{70}{105}$
4) $\frac{27}{33}$	5) $\frac{63}{81}$	6) $\frac{88}{121}$
7) $\frac{78}{112}$	8) $\frac{14}{56}$	9) $\frac{105}{126}$

Improper Fraction to Mixed Number Example

$\frac{37}{2}$ Think – how many times does 2 go into 37?

$$2\overline{)37}\quad \begin{array}{l}18 \text{ whole} \\ -2 \\ \hline 17 \\ -16 \\ \hline 1 \text{ numerator}\end{array}$$

denom.

$18\frac{1}{2}$ Simplify if possible

10) $\frac{25}{6}$	11) $\frac{230}{35}$	
12) $\frac{54}{3}$	13) $\frac{338}{10}$	
14) $\frac{75}{12}$	15) $\frac{80}{16}$	

Mixed Number to Improper Fraction Example

$3\frac{4}{5} = \frac{5 \times 3 + 4}{5} = \frac{15+4}{5} = \frac{19}{5}$

16) $2\frac{9}{16}$	17) $6\frac{7}{11}$	18) $8\frac{9}{30}$

Multiplying/Dividing Fractions and Mixed Numbers

If there is a mixed number, convert to improper fraction. Multiply straight across.

1) $\frac{5}{4} \bullet \frac{1}{3}$

2) $\frac{8}{7} \bullet \frac{7}{10}$

3) $\frac{4}{9} \bullet \frac{7}{4}$

4) $\frac{2}{3} \bullet \frac{5}{4}$

5) $\left(2\frac{1}{5}\right) \bullet \left(1\frac{3}{4}\right)$

6) $\left(2\frac{2}{3}\right) \bullet \left(4\frac{1}{10}\right)$

Remember to Keep-Change-Flip when dividing fractions!

7) $\frac{1}{5} \div \frac{7}{4}$

8) $\frac{1}{2} \div \frac{5}{4}$

9) $\frac{1}{2} \div \frac{8}{7}$

10) $\frac{9}{5} \div 2$

11) $2 \div \left(3\frac{4}{5}\right)$

12) $\frac{1}{9} \div \left(1\frac{1}{3}\right)$

Order of Operations

Use the acronym GEMDAS:

G – Grouping symbols such as parentheses, brackets, set notation, and fraction bars

E – Exponents

M/D – Multiplication & division in order from left to right

A/S – Addition & subtaction in order from left to right

Show one operation per step!! Simplify:

1) $6 + 4 - 2 \bullet 3$

2) $2 \bullet 3 + 5 - 7$

3) $15 \div 3 \bullet 5 - 4$

4) $29 - 3 \bullet 9 + 4$

5) $20 + 7 \bullet 5$

6) $4 \bullet 9^2 - 9 \bullet 7$

7) $50 - (17 + 8)$

8) $(12 - 4) \div 8 + 3$

9) $12 \bullet 5 + 6 \div 6$

10) $18 - 4^2 + 7$

11) $3(2 + 7) + 9\,(7)$

12) $8 \bullet 2^2 \div 4$

Order of Operations... continued

13) $16 \div 2 \bullet 5 \bullet 3 \div 6$

14) $12 \div 3 + 6 \bullet 2 - 8 \div 4$

15) $\dfrac{10 - (27 \div 9)}{7 - 4}$

16) $\dfrac{32}{\left[16 \div (8 \div 2)\right]}$

17) $\dfrac{\left[8 \bullet 2 - (3 + 9)\right]}{(8 - 2 \bullet 3)}$

18) $6 \bullet 5 - 56 \div 7 + 7 \bullet 2$

Evaluating Expressions

Evaluate = plug in for the variable using parentheses and simplify

Example: given x = 2 and y = 4, evaluate 3x + y SOLUTION = 3(2) + (4) = 6 + 4 = 10

Evaluate each expression given that x = 5, y = 4, and z = 6

1) 3x - z

2) yz + 4

3) 2xy + z

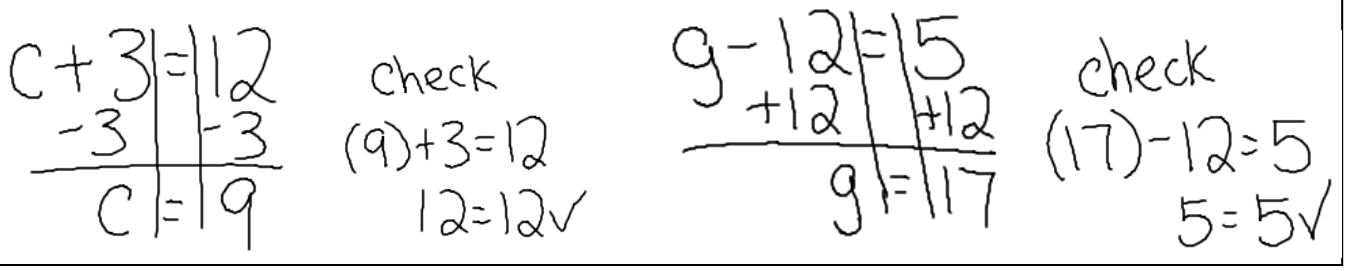
4) 2(x + z) – y

5) 4y + 5z + 1

6) 2xyz + x

Addition & Subtraction 1-step Equations

Example:



1) $n + 28 = 84$	2) $x - 48 = 129$
3) $y + 59 = 194$	4) $b + 48 = 190$
5) $p - 167 = 75$	6) $r - 46 = 278$
7) $x + 87 = 364$	8) $a - 76 = 69$

Multiplication & Division 1-step Equations

Example:

$\frac{d}{3} = 21$

$3 \cdot \frac{d}{3} = 21 \cdot 3$

$d = 63$

check

$\frac{(63)}{3} = 21$

$21 = 21$ ✓

$7r = 42$

$\frac{7r}{7} = \frac{42}{7}$

$r = 6$

check

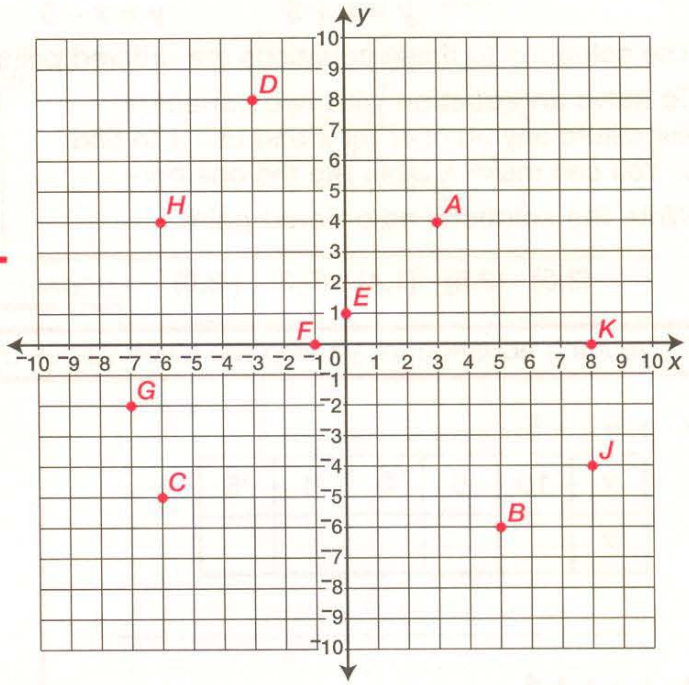
$7(6) = 42$

$42 = 42$ ✓

1) $2y = 98$	2) $7x = 168$
3) $\frac{b}{22} = 6$	4) $\frac{x}{2} = 9$
5) $33 = \frac{y}{16}$	6) $27m = 972$
7) $432 = 36a$	8) $84 = \frac{m}{4}$

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.**

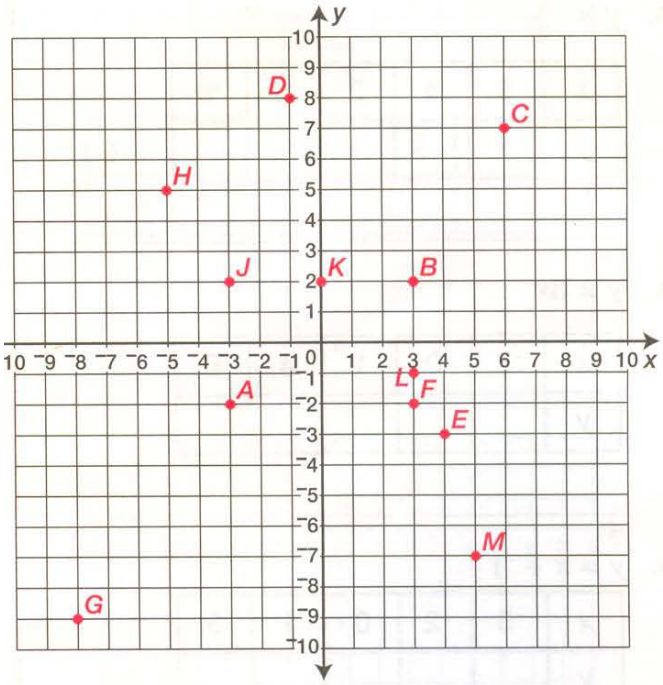


Name the ordered pair for each point.

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

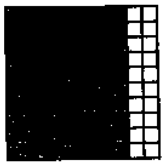
Name the point for each ordered pair on the coordinate plane below.

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



Fractions, Decimals, and Percents

The same number can be named as a fraction, a decimal, or a percent.



$$\frac{80}{100} = \frac{8}{10} = \frac{4}{5}$$
$$\frac{80}{100} = 0.80 = 0.8$$
$$\frac{80}{100} = 80\%$$

To find an **equivalent fraction** in higher terms, multiply both terms by the same number.

$$\frac{4 \times 2}{5 \times 2} = \frac{8}{10}$$

To find an equivalent fraction in lower terms, divide both terms by the same number. Use the greatest common factor (GCF) to find the **lowest terms,** or simplest form.

$$\frac{80 \div 2}{100 \div 2} = \frac{40}{50} \qquad \frac{80 \div 20}{100 \div 20} = \frac{4}{5}$$

Decimals name fractions in place-value form. To change a fraction to a decimal, divide the numerator by the denominator.

$$\frac{4}{5} = 4 \div 5 = 0.80$$

Percents name fractions as a part of 100. To change a percent to a decimal, drop the percent sign, %, and move the decimal point two places to the ***left.***

$$32\% = 0.32$$

To change a percent to a **fraction,** first write it as a decimal. Then change the decimal to a fraction and simplify.

$$32\% = 0.32 = \frac{32}{100} = \frac{8}{25}$$

To change a fraction to a **percent,** first change it to a decimal. Move the decimal point two places to the ***right*** and add a percent sign.

$$\frac{3}{8} = 3 \div 8 = 0.375 = 37.5\%$$

Remember—

The **terms** of a fraction are the **numerator** and **denominator.**

To compare fractions, first write them as equivalent fractions with like denominators.

$$\frac{2}{3} < \frac{3}{4}$$
because
$$\frac{8}{12} < \frac{9}{12}$$

Use the **least common multiple** (LCM) of the denominators to find equivalent fractions.

To compare decimals, compare digits in the same places. Compare tenths to tenths, hundredths to hundredths, and so on.

$0.50 > 0.454$
5 tenths > 4 tenths

Zeros trailing the last significant digit of a decimal do not change its value.

$50\% = 0.50 = 0.5$
$500\% = 5.00 = 5$

When a fraction divides into a repeating decimal, write the part after the hundredths as a fraction.

$\frac{1}{3} = 1 \div 3 = 0.3333\ldots$
$0.33\overline{3} = 33\frac{1}{3}\%$

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

1 A jellyroll is sliced into 12 equal pieces at a bakery. Winton bought 4 pieces. ***About*** what percent of the jellyroll is that?

A 25% **C** 35%

B 33.3% **D** 40%

Did you choose B? That's correct. Four of 12 pieces equals $\frac{4}{12}$ or $\frac{1}{3}$. Divide to find a decimal: $1 \div 3 = 0.333...$ Change the decimal to a percent: $0.333... = 33\frac{1}{3}\%$, or about 33.3%.

2 Yvonne had 25 stamps. She used 20 of them. Which represents the portion of the stamps Yvonne used?

F 0.4 **H** $\frac{4}{5}$

G 60% **J** $\frac{15}{20}$

3 Ramón cut three lengths of rope. The pieces were 5.35, 5.46, and 5.43 meters long. Which list shows the lengths in order from least to greatest?

A 5.35, 5.43, 5.46

B 5.43, 5.35, 5.46

C 5.35, 5.46, 5.43

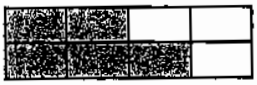
D 5.46, 5.43, 5.35

4 Of the 40 students in Irene's class, 30% are girls. How many girls are in Irene's class?

F 10 **H** 15

G 12 **J** 30

5 Look at this figure.



Which of these does ***not*** name the shaded part?

A 0.582 **C** 0.625

B $\frac{5}{8}$ **D** $62\frac{1}{2}\%$

6 This table shows how much four people earned and the amount of their earnings they spent.

Person	*Earned*	*Spent*
Fred	$80	$35
Marla	90	35
Juana	100	35
Barry	110	35

Who spent 35% of his or her earnings?

F Fred **H** Juana

G Marla **J** Barry

7 Hassan ran $\frac{2}{3}$ mile on Tuesday, $\frac{5}{8}$ mile on Wednesday, $\frac{3}{4}$ mile on Thursday, and $\frac{7}{12}$ mile Friday. On which day did he run the farthest?

A Tuesday **C** Thursday

B Wednesday **D** Friday

8 A sign at a store said all purchases were 40% off. Which is another way this number could have been written?

F $\frac{1}{5}$ off **H** $\frac{3}{10}$ off

G $\frac{1}{4}$ off **J** $\frac{2}{5}$ off

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.