Middle School Summer Review Packet for West Bloomfield Middle School Grade 6

(students who have completed Math 6)

Refresher 1: Statistics

A. Identify the ***outlier*** in this set of data.

67, 54, 49, 76, 64, 59, 60, 72, 123, 44, and 66

B. Find the ***mean*** of this set of data

34, 31, 37, 44, 38, 34, 42, 34, 43, 41

C. Find the ***median*** of this set of data.

34, 31, 37, 44, 38, 34, 43, and 41

D. Find the ***range*** of these sets of data.

1. 114, 109, 131, 96, 140, and 128
2. 37, 44, 36, 29, 78, 15, 57, 54, 63, 27, and 48

WEST BLOOMFIELD
SCHOOL DISTRICT

Middle School Summer Review Packet for Abbott and Orchard Lake Middle School

Grade 6

Refresher 2: Multiplication

A. Fractions and mixed numbers

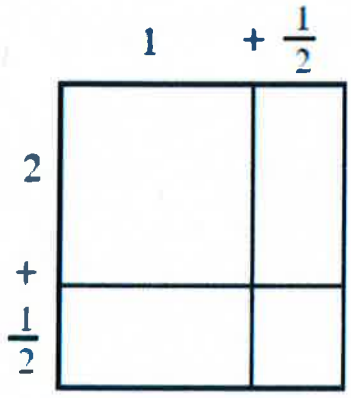
1. $\frac{5}{12} \times \frac{3}{5} =$
2. $\frac{3}{10} \times \frac{7}{18} =$
3. $2\frac{1}{4} \times 1\frac{3}{5} =$
4. $2\frac{3}{8} \times 1\frac{1}{6} =$
5. $\frac{1}{4} \times \frac{8}{9} \times \frac{18}{19} =$

B. Decimals

1. 0.08×4.7
2. 7.34×6.4
3. 350×0.004
4. 0.007×0.06
5. 4.023×3.02

C. Multiply using the ***generic rectangle***

1.



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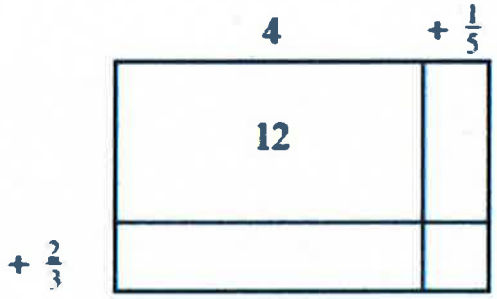


Refresher 3: Equivalence

A. Use the "giant one" to find the missing numerators.

1. $\frac{4}{3} \cdot \boxed{1} = \frac{?}{15}$

2. $\frac{5}{9} \cdot \boxed{1} = \frac{?}{36}$

3. $\frac{9}{2} \cdot \boxed{1} = \frac{?}{38}$

4. $\frac{3}{7} \cdot \boxed{1} = \frac{?}{28}$

5. $\frac{5}{3} \cdot \boxed{1} = \frac{?}{18}$

6. $\frac{6}{5} \cdot \boxed{1} = \frac{?}{15}$

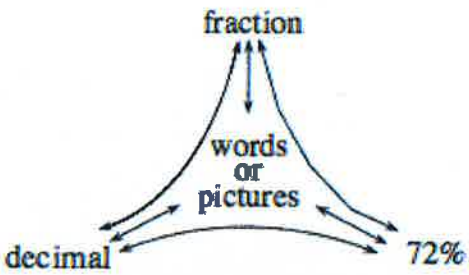
B. Simplify these fractions

1. $\frac{10}{15}$ 2. $\frac{9}{12}$ 3. $\frac{20}{25}$ 4. $\frac{14}{49}$ 5. $\frac{24}{48}$

6. $\frac{15}{27}$ 7. $\frac{24}{32}$ 8. $\frac{28}{49}$ 9. $\frac{50}{54}$ 10. $\frac{24}{36}$

C. Complete these portion webs

1.



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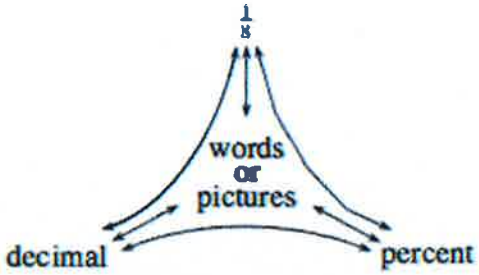

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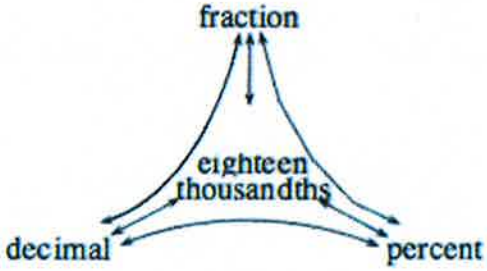

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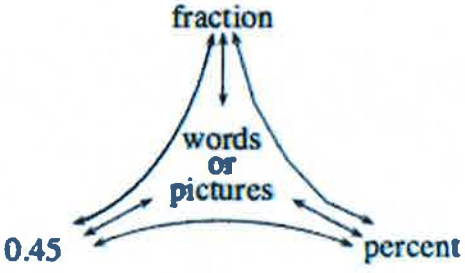


Refresher 4: Addition and subtraction of rational numbers.

A. Fractions

1. $\frac{1}{3}+\frac{2}{5}=$
2. $\frac{2}{9}+\frac{3}{4}=$
3. $\frac{7}{9}-\frac{2}{3}=$
4. $\frac{6}{7}-\frac{2}{3}=$
5. $\frac{1}{3}-\frac{1}{4}=$

B. Mixed Numbers

1. $5\frac{3}{4}+3\frac{1}{6}=$
2. $5\frac{2}{3}+8\frac{3}{8}=$
3. $4\frac{4}{9}+5\frac{2}{3}=$
4. $2\frac{1}{2}-1\frac{3}{4}=$
5. $4\frac{1}{3}-3\frac{5}{6}=$

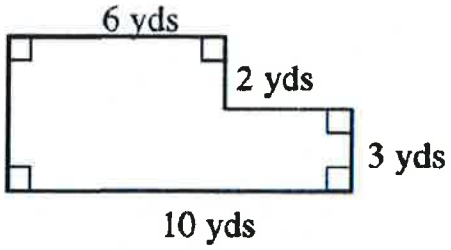
C. Decimals

1. 4.7 + 7.9 =
2. 58.3 + 72.84 =
3. 42.1083 + 14.73 =
4. 9.38 – 7.5 =
5. 6.304 – 3.68 =

Refresher 5: Area and perimeter

A. Find the area and the perimeter of these composite figures.

1.



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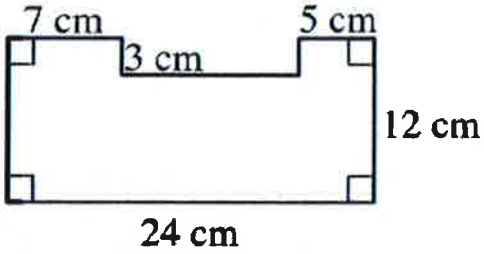
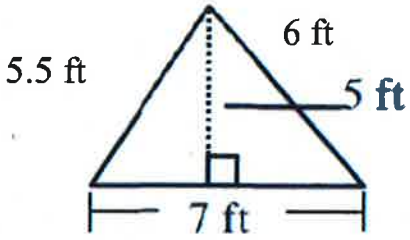


B. Find the area and the perimeter of these polygons.

1.



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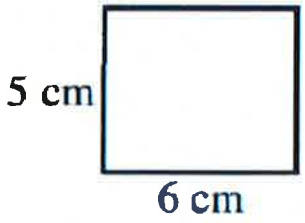

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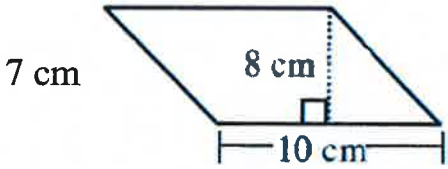

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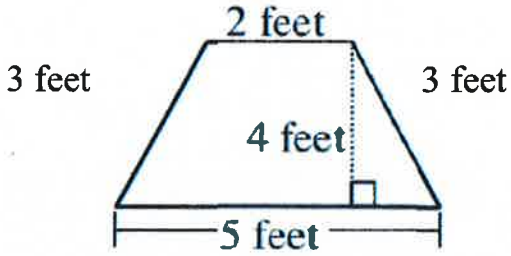
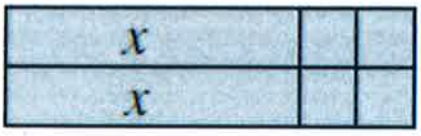


C. Find the area and the perimeter of these algebra tile pictures.

1.



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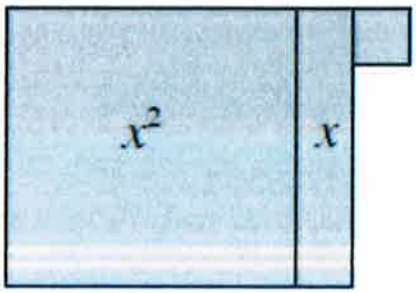


Refresher 6: Expressions

A. Use correct ***order of operations*** to simplify these expressions.

1. $6(7 + 3) + 8 \div 2$
2. $15 \div 3 + 7(8 + 1) - 6$
3. $\frac{9}{3} + 5 \cdot 3^2 - 2(14 - 5)$
4. $2^3 + 8 - 16 \div 8 \times 2$

B. ***Evaluate*** these expressions for x = 4 and y = 3.

1. $x - 1$
2. $x + y + 3$
3. $y - 3 + x$
4. $x + 3 + 2y$

C. Combine ***like terms.***

1. $2x + 3y + x + y + 4$
2. $6x + 7y - 2x - y$
3. $(4x + y + 10) - (x + y + 3)$
4. $(2x^2 + x + 1) + (3x + 2)$
5. $a + 3ab + 4b + 2a + ab$
6. $6x^2 + 10 + 4x - 4x^2 - 7 + x^2$

Refresher 7: Division of rational numbers

A. Long division; "top (first) dog" in the house

1. $406 \div 9 =$
2. $1426 \div 6 =$
3. $2165 \div 35 =$
4. $\frac{135}{5}$
5. $\frac{82}{3}$

B. Fractions and mixed numbers; remember KCF (keep, change, flip)

1. $\frac{3}{10} \div \frac{5}{7} =$
2. $7 \div \frac{1}{3} =$
3. $\frac{5}{8} \div 1\frac{1}{4} =$
4. $10\frac{1}{3} \div \frac{1}{6} =$
5. $\frac{3}{5} \div 6 =$

C. Decimals; remember "top (first) dog" in the house and we DO NOT divide by a decimal!

1. $14.3 \div 8$
2. $46.36 \div 12$
3. $47.3 \div 0.002$
4. $\frac{420}{0.05}$
5. $\frac{26.35}{2.2}$

D. Story problems

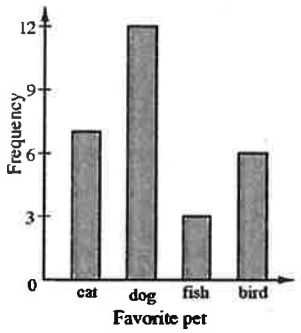
1. If you had 12 pieces of licorice to share equally among 5 people, how much licorice would each person get?

2. Jesse has five meters of twine and needs to cut it into lengths that are each $\frac{1}{4}$ of a meter long. How many lengths will he have? Express this problem in a number sentence that uses division

3. A rectangle has an area of $\frac{1}{6}$ square centimeters and a length of 1.5 centimeters. What is the width? What is the perimeter?

Refresher 8: Graphical representation of data

A. Ms. Lim asked each of her students about their favorite kind of pet. Based on their responses, she drew the bar graph at right. Use the bar graph to answer each question.



a. What is the favorite pet?
b. How many students chose a bird as their favorite pet?
c. What was the least favorite pet?
d. If every student voted once, how many students are in the class?

B. Three coins were tossed 20 times and the number of results that were heads each time is shown below. Make a ***histogram*** to show the results.

1, 1, 2, 0, 2, 3, 1, 2, 1, 2, 2, 1,3, 2, 0, 1, 2, 0, 2, 1

C. Make a ***stem-and-leaf plot*** and then find the ***mean, median, and range***.

49, 54, 52, 58, 61, 72, 73, 78, 73, 82, 83, 73, 61, 67, 68

D. Make a ***box-and-whisker plot.***

51, 55, 55, 62, 65, 72, 76, 78, 79, 82, 83, 85, 91, 93

Refresher 9: Rates

A. Find the ***unit rate***

1. Typing 731 words in 17 minutes (words per minute)

2. Reading 258 pages in 86 minutes (pages per minute)

3. Buying 15 boxes of cereal for $43.35 (cost per box)

4. Scoring 98 points in a 40 minute game (points per minute)

5. Paying $3.89 for 1.7 pounds of chicken (cost per pound)

B. Solve these ***rate*** problems

6. Balvina knows that 6 cups of rice will make enough Spanish rice to feed 15 people. She needs to know how many cups of rice are needed to feed 135 people.

7. Elaine can plant 6 flowers in 15 minutes. How long will it take her to plant 30 flowers at the same rate?

8. A plane travels 3400 miles in 8 hours. How far would it travel in 6 hours at this rate?

9. Shane rode his bike for 2 hours and traveled 12 miles. At this rate, how long would it take him to travel 22 miles?

10. Selina's car used 15.6 gallons of gas to go 234 miles. At this rate, how many gallons would it take her to go 480 miles?

Refresher 10: Miscellaneous

A. Absolute value

1. $|-10| =$
2. $|0| + |-5| =$
3. $|-3| - |3| =$

B. Solve these ***equations***

1. $x - 14 = 32$
2. $102 = 50 + y$
3. $w + 10 + w + 10 = 50$

C. Croakie, the amazing jumping frog, on the number line.

1. Croakie starts at 0, jumps 4 units to the right, then 12 units to the left. Where is Croakie now?
2. Croakie starts at -16 and jumps 10 units to the right. Where is Croakie now?
3. Croakie starts at 13 and jumps 2 units to the left. Croakie repeats this jump five more times! Where is Croakie now?

D. Write these numbers in order from smallest to largest. A number line might be useful.

1. $-\frac{3}{4}$, -3, 0.30, -1, $1\frac{1}{2}$, -0.50, $\frac{8}{4}$, 3.5

2. -0.8, -1, $\frac{3}{5}$, 1, $-\frac{2}{5}$, $\frac{1}{10}$, 0, $\frac{1}{2}$,

Solutions to the Problems

Refresher 1: Statistics

A. 123

B. 37.8

C. 37.5

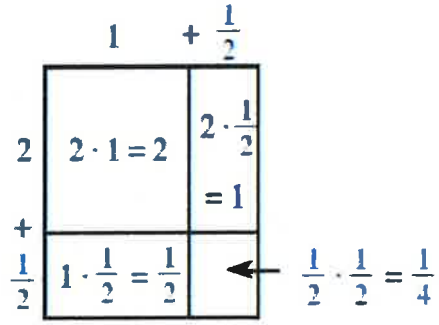
D. 1. 44 2. 51

Refresher 2: Multiplication

1. $\frac{1}{6}$
2. $\frac{7}{60}$
3. $3\frac{3}{5}$
4. $2\frac{37}{48}$
5. $\frac{4}{19}$

1. 0.376
2. 46.976
3. 1.4
4. 0.00042
5. 12.14946

1.



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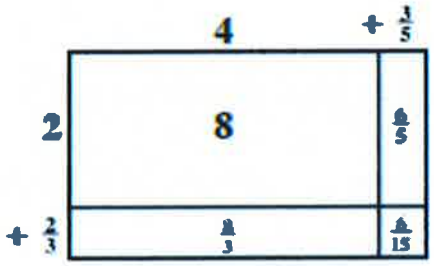


Refresher 3: Equivalence

A.

1. $\frac{5}{5}, 20$ 2. $\frac{4}{4}, 20$ 3. $\frac{19}{19}, 171$ 4. $\frac{4}{4}, 12$ 5. $\frac{6}{6}, 30$ 6. $\frac{3}{3}, 18$

B.

1. $\frac{2}{3}$	2. $\frac{3}{4}$	3. $\frac{4}{5}$	4. $\frac{2}{7}$	5. $\frac{1}{2}$
6. $\frac{5}{9}$	7. $\frac{3}{4}$	8. $\frac{4}{7}$	9. $\frac{25}{27}$	10. $\frac{2}{3}$

C.

1. $\frac{18}{25}$, .72, seventy-two percent
2. $12\frac{1}{2}$%, 0.125, one-eighth
3. $\frac{9}{500}$, $1\frac{4}{5}$%, 0.018
4. $\frac{9}{20}$, 45%, nine-twentieths

Refresher 4: Add and subtract rational numbers

1. $\frac{11}{15}$	1. $8\frac{11}{12}$	1. 12.6
2. $\frac{35}{36}$	2. $14\frac{1}{24}$	2. 131.14
3. $\frac{1}{9}$	3. $10\frac{1}{9}$	3. 56.8383
4. $\frac{4}{21}$	4. $\frac{3}{4}$	4. 1.88
5. $\frac{1}{12}$	5. $\frac{1}{2}$	5. 2.624

Refresher 5: Area and perimeter

1. 42 square yards; 26 yards
2. 252 square cm; 88 cm
3. 80 square cm; 34 cm
4. 14 square feet; 13 feet

1. 8.75 square feet; 17.5 feet
2. 30 square cm; 22 cm

1. $2x + 4$
2. $x^2 + x + 1; 4x + 4$

Refresher 6: Expressions

1. 64
2. 62
3. 30
4. 12

1. 3
2. 10
3. 4
4. 13

1. $3x + 4y + 4$
2. $4x + 6y$
3. $3x + 7$
4. $2x^2 + 4x + 3$
5. $3a + 4ab + 4b$
6. $3x^2 + 4x + 3$

Refresher 7: Division of rational numbers

1. $45.\overline{1}$
2. $237.\overline{6}$
3. $61.\overline{857142}$
4. 27
5. $27.\overline{3}$

1. $\frac{21}{50}$
2. 21
3. $\frac{1}{2}$
4. 62
5. $\frac{1}{10}$

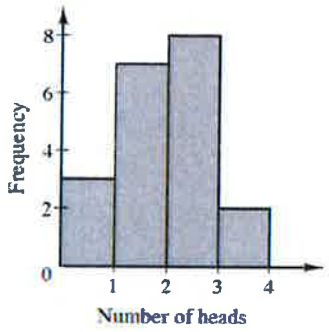
1. 1.7875
2. $3.86\overline{3}$
3. 23,650
4. 8400
5. 11.98

1. $\frac{12}{5}$ *or* $2\frac{2}{5}$ *pieces*
2. $5 \div \frac{1}{4} = 20$ lengths
3. *the width is* $\frac{1}{9}$ *; the perimeter is* $3\frac{2}{9}$

Refresher 8: Graphical representations

A. a. dog b. 6 c. fish d. 28

B.



C.

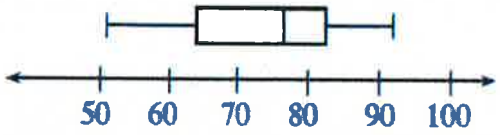
4	9
5	2 4 8
6	1 1 7 8
7	2 3 3 3 8
8	2 3

Mean 66.93

Median 68

Range 83 – 49 = 3 4

D.



Refresher 9: Rates

1. 43 words per minute
2. 3 pages per minute
3. $2.89 per box
4. 2.45 points per minute
5. $2.29 per pound
6. 54 cups
7. 75 minutes
8. 2550 miles
9. $3\frac{2}{3}$ hours
10. 32 gallons

Refresher 10: Miscellaneous

A. Absolute value

1. 10
2. 5
3. 0

B. Solve equations

1. x = 46
2. y = 52
3. w = 15

C. Croakie on the number line

1. -8
2. -6
3. 1

D. Order rational numbers

1. -3 -1 $-\frac{3}{4}$ -0.5 0.30 $1\frac{1}{2}$ $\frac{8}{4}$ 3.5
2. -1 -0.8 $-\frac{2}{5}$ 0 $\frac{1}{10}$ $\frac{1}{2}$ $\frac{3}{5}$ 1