

FOR STUDENTS WHO HAVE COMPLETED 5TH GRADE MATH (Entering Math 6)

Name: _____

Date: _____

Dear Parent/Guardian & 6th Grade Math Student,

Next school year, your child will be in a 6th grade math course and will need core prerequisite skills from 5th grade upon the start of school. You will find a review packet of skills which each child is expected to know upon the start of the year. Teachers will go over the answers from the packet during the first week of school and minimal direct instruction will occur on these concepts, as they are a review from 5th grade. Students may seek additional help during recap to ask questions.

The following are the topics that students should know coming into 6th grade.

- Whole Numbers
- Number Theory
- Order of Operations
- Decimals
- Fractions

It is imperative that all students know their multiplication facts fluently.

You may also access the following websites to assist your child.

www.purplemath.com

www.math.com

www.khanacademy.com

It is recommended that students review the packet, as it is imperative for future successes in math to have essential, baseline skills.

Have a great summer.

Mrs. Kaplan

PLEASE SHOW ALL WORK. STUDENTS SHOULD NOT USE A CALCULATOR FOR THIS PACKET.

NO CALCULATOR! SHOW ALL WORK!

Whole Numbers – Adding and Subtracting Page 2

A) $451 + 23 + 659$ B) $700 - 128$

$$\begin{array}{r} 11 \\ 451 \\ 23 \\ + \\ 659 \\ \hline 1134 \end{array}$$

$$\begin{array}{r} 6910 \\ 700 \\ - \\ 128 \\ \hline 572 \end{array}$$

NO CALCULATOR! SHOW ALL WORK!

1. $623 + 433 + 56$

2. $893 - 395$

3. $1987 + 432 + 543 + 28$

4. $196 - 129 =$

| | |
|---------------------|----------------------|
| 5. $98 + 45 - 32$ | 6. $65 - 32 + 77$ |
| 7. $439 + 53 - 488$ | 8. $763 - 492 + 157$ |

Whole Numbers – Multiplying and Dividing Page 3

A) 653×29 $1820 \div 28$

| | | |
|---|---|---|
| $ \begin{array}{r} \overset{1}{4}2 \\ 653 \\ \times 29 \\ \hline 5877 \\ + 13060 \\ \hline 18937 \end{array} $ | $ \begin{array}{r} 65 \\ 28 \overline{)1820} \\ \underline{168} \\ 140 \\ \underline{140} \\ 0 \end{array} $ | $ \begin{array}{r} 28 \overline{)1820} \\ \underline{56} \\ 28 \\ \underline{56} \\ 0 \end{array} $ |
|---|---|---|

NO CALCULATOR! SHOW ALL WORK!

| | | |
|--------------------|---------------------|--------------------|
| 1. 975×8 | 2. 109×7 | 3. 23×15 |
| 4. 73×18 | 5. 471×16 | 6. 981×65 |
| 7. $2970 \div 5$ | 8. $2124 \div 4$ | 9. $32751 \div 9$ |
| 10. $5472 \div 19$ | 11. $42800 \div 25$ | 12. $3348 \div 31$ |

Order of Operations Page 4

Parentheses (Grouping Symbols) $[(7 - 4)^2 + 3] + 15$
Exponents = $[3^2 + 3] + 15$
Multiply or Divide, from left to right = $[3 \cdot 3 + 3] + 15$
Add or Subtract, from left to right = $[9 + 3] + 15$
= $12 + 15$
= 27

NO CALCULATOR!

| | | |
|---------------------------|---------------------------------|------------------------------|
| 1. $6 \div 3 + 2 \cdot 7$ | 2. $5 + 8 \cdot 2 - 4$ | 3. $16 \div 8 \cdot 2^2$ |
| 4. $10 \div (3 + 2) + 9$ | 5. $7 \cdot [(18 - 6) - 6]$ | 6. $3 + (27 \div 9) - 5$ |
| 7. $(5 - 3)^2 + 3$ | 8. $[10 + (25 \cdot 2)] \div 6$ | 9. $(9 \cdot 2) + 18 \div 6$ |

Use Euclid's Ladder (or a factor tree) to write the prime factorization.

| | | |
|--------------------|-------|-------------------------------|
| 2 60 | 2 250 | 250 |
| | | 10 x 25 |
| 2 30 | 5 125 | 125 = 2 X 5 X 5 X 5 OR |
| 60 = 2 x 2 x 3 x 5 | 5 25 | |
| 3 15 | 5 | |
| 5 | | 2 x 5 x 5 x 5 |

1. 64

2. 100

3. 72

| | | |
|-------|-------|-------|
| 4. 48 | 5. 36 | 6. 54 |
|-------|-------|-------|

Greatest Common Factor Page 6

Find the GCF of 24 and 36. 24: 1, 2, 3, 4, 6, 8, **12**, 24
36: 1, 2, 3, 4, 6, 9, **12**, 18, 36 GCF of 24 and 36 is **12**.

No calculator! SHOW ALL WORK!

| | |
|--------------|--------------|
| 1. 18 and 54 | 2. 36 and 54 |
| 3. 24 and 60 | 4. 32 and 56 |

| | |
|---------------|--------------|
| 5. 100 and 75 | 6. 28 and 49 |
| 7. 35 and 50 | 8. 64 and 88 |

Least Common Multiple Page 7

Find the LCM of 8 and 12. 8: 8, 16, **24**, 32, 40, 48, 56, . . .
12: 12, **24**, 36, 48, 60, 72, . . . LCM of 8 and 12 is **24**.

No calculator! SHOW ALL WORK!

| | |
|------------|------------|
| 1. 6 and 8 | 2. 4 and 6 |
|------------|------------|

| | |
|-------------|--------------|
| 3. 5 and 7 | 4. 12 and 18 |
| 5. 6 and 9 | 6. 12 and 9 |
| 7. 15 and 6 | 8. 14 and 4 |

Decimals – Adding and Subtracting Page 8

Rules:

1) Line up decimal points, if a number does not have a decimal point it is a whole number with the decimal point at the end.

$$4.1 + 3 + 5.61 + 21.16 - 7.498$$

2) Annex zeros to hold place.

3) Add or subtract vertically.

$$4.10 \ 16.000$$

4) Bring down the decimal point.

$$3.00 - \underline{7.498}$$

$$5.61 \ 8.502$$

NO CALCULATOR! SHOW ALL WORK! ^{+21.00}

| | | |
|----------------------|--|-----------------------------|
| 1. $42.78 + 19.56$ | 2. $0.0997 + 1.4$ <small>33.71</small> | 3. $6.29 + 5$ |
| 4. $0.663 + 1.58$ | 5. $\$62.74 + \$1.75 + \$12$ | 6. $0.0674 + 0.12 + 0.0098$ |
| 7. $40.75 - 17.46$ | 8. $0.95 - 0.68$ | 9. $6 - 3.8$ |
| 10. $\$60 - \31.74 | 11. $\$12.36 - \8.75 | 12. $21.007 - 4.678$ |

Rules:

Multiplying

- 1) Line up digits, starting on the right. $(6.432)(4.15)$
- 2) Multiply 6.432 (3 decimal places) 3) Place the decimal point in the answer by starting at the right $\times 4.15$ (2 decimal places) and moving a number of places equal to the sum of the 32160 decimal places in both numbers multiplied. 64320

2572800

26.69280 (5 decimal places) Dividing

- 1) If the divisor is not a whole number, move the decimal point $27.216 \div 4.8$ To the right to make it a whole number and move the decimal 5.67 Point in the dividend the same number of places.
48.)272.16

- 2) Divide. -240 3) Bring the decimal point up. 321 -288 336 -336

NO CALCULATOR! SHOW ALL WORK!

1. 5.4×0.07

2. 5.9×1.2

3. 69.3×0.15

4. 3.96×3.3

$5. 9.01 \times 0.48$

$6. 0.24 \div 0.8$

$7. 84.48 \div 0.88$

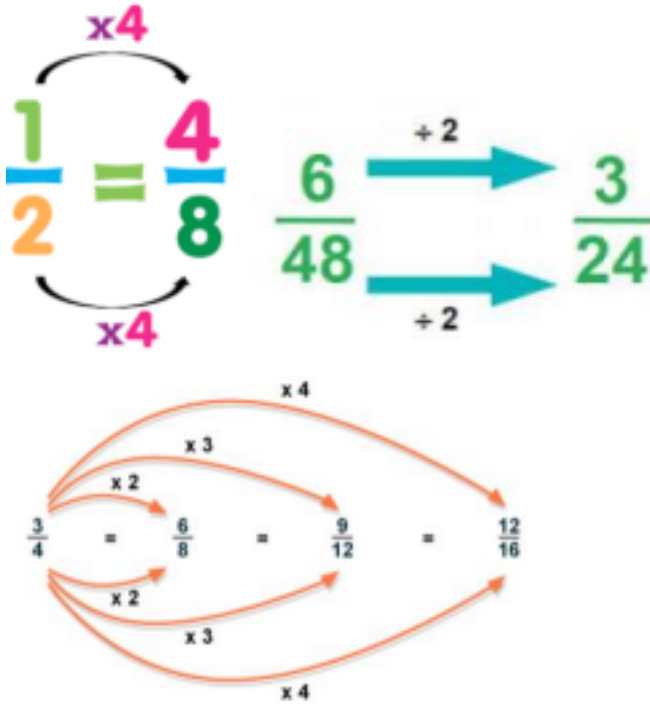
$8. 6.56 \div 4$

$9. 34.06 \div 0.13$

$10. 147 \div 0.49$

Equivalent Fractions page 11

To find an equivalent fraction multiply or divide the numerator and denominator by the same value.

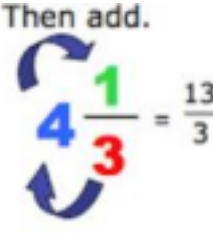
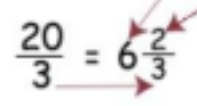


Name three equivalent fractions to the one given:

| | |
|--------------------|--------------------|
| 1. $\frac{4}{5}$ | 2. $\frac{10}{15}$ |
| 3. $\frac{1}{7}$ | 4. $\frac{16}{40}$ |
| 5. $\frac{12}{30}$ | 6. $\frac{6}{8}$ |

| | |
|----------------------|-------------------------|
| 7. $2\frac{9}{9}$ | 8. $14\frac{35}{35}$ |
| 9. $18\frac{28}{28}$ | 10. $80\frac{120}{120}$ |

Converting Mixed Numbers to Improper Fractions page 12

| | |
|---|--|
| <p><i>Multiply the whole number by the denominator and add the numerator.</i></p> <p><i>Keep the same denominator.</i></p> <p>Then add.</p>  <p>Multiply.</p> | <p>Convert $\frac{20}{3}$ to a mixed number</p> <p>Divide the numerator by the denominator</p> <p>$20 \div 3 = 6$ plus 2 remainder</p>  <p>6 becomes the whole number 2 is the numerator of the fraction as shown 3 is the denominator</p> |
|---|--|

Convert to Mixed Number or Improper Fractions:

| | |
|---------------------|---------------------|
| 1. $4\frac{4}{4} =$ | 2. $5\frac{5}{5} =$ |
| 3. $2\frac{2}{2} =$ | 4. $3\frac{3}{3} =$ |

| | |
|----------------------------------|-----------------------------------|
| 5. $\frac{1}{4} + \frac{1}{4} =$ | 6. $\frac{1}{4} + \frac{1}{4} =$ |
| 7. $\frac{1}{4} + \frac{1}{4} =$ | 8. $\frac{1}{4} + \frac{1}{4} =$ |
| 9. $\frac{1}{4} + \frac{1}{4} =$ | 10. $\frac{1}{4} + \frac{1}{4} =$ |

Fractions – Adding and Subtracting Page 13

| | | |
|--|---|---|
| <p>A. $\frac{3}{4} + \frac{1}{3} =$</p> | <p>If the denominators are different, find the</p> | $\frac{3}{6} - \frac{2}{6} =$ |
| $\frac{12}{9} + \frac{4}{12} =$ | <p>least common multiple of the two numbers</p> | |
| $\frac{13}{12} = 1 \frac{1}{12}$ | <p>and convert both fractions to the matching common denominator.</p> | $\frac{15}{18} - \frac{6}{18} =$ $\frac{11}{18}$ |

NO CALCULATOR! SHOW ALL WORK!

| | | |
|-------------------------------------|--------------------------------------|-------------------------------------|
| 1. $\frac{2}{3} + \frac{1}{5} =$ | 2. $\frac{1}{7} + \frac{1}{3} =$ | 3. $\frac{2}{10} + \frac{1}{2} =$ |
| 4. $\frac{7}{8} - \frac{1}{2} =$ | 5. $\frac{5}{6} - \frac{2}{3} =$ | 6. $\frac{5}{9} - \frac{2}{4} =$ |
| 7. $\frac{7}{12} + \frac{2}{9} =$ | 8. $\frac{14}{15} + \frac{3}{5} =$ | 9. $\frac{9}{16} + \frac{5}{24} =$ |
| 10. $\frac{12}{16} - \frac{1}{4} =$ | 11. $\frac{27}{33} - \frac{5}{11} =$ | 12. $\frac{15}{18} - \frac{4}{9} =$ |

Fractions – Multiplying Page 14

| | |
|----------------------------------|---|
| Multiply the numerators | $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$ |
| Multiply the denominators | $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$ |
| Reduce the fraction if necessary | $\frac{6}{20} = \frac{3}{10}$ |

NO CALCULATOR! SHOW ALL WORK!

| | | |
|------------------------------------|--|--------------------------------------|
| 1. $3^1 \diamond \diamond 5^1 =$ | 2. $7^2 \diamond \diamond 5^2 =$ | 3. $9^4 \diamond \diamond 2^1 =$ |
| 4. $8^3 \diamond \diamond 4^3 =$ | 5. $10^9 \diamond \diamond 9^1 =$ | 6. $12^7 \diamond \diamond 5^2 =$ |
| 7. $11^6 \diamond \diamond 4^2 =$ | 8. $6^5 \diamond \diamond 9^2 =$ | 9. $12^{20} \diamond \diamond 7^3 =$ |
| 10. $13^5 \diamond \diamond 6^4 =$ | 11. $15^{25} \diamond \diamond 15^5 =$ | 12. $10^6 \diamond \diamond 9^3 =$ |

Perimeter:

Perimeter of a rectangle

The opposite sides of a rectangle are congruent.

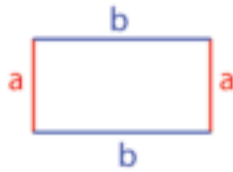
$$P = a + b + a + b$$

$$P = a + b + a + b$$

Example:

If $a = 3$ units and $b = 5$ units then

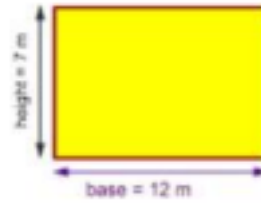
Perimeter (P) = $3 + 5 + 3 + 5 = 16$ units



Area of Rectangle

The area of a Rectangle equals the base times the height.

$$A = b \times h$$



$$A = b \times h$$

$$A = 12 \times 7$$

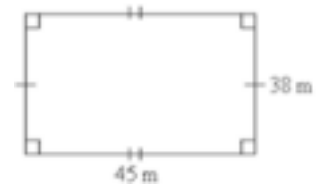
$$A = 84 \text{ m}^2$$

Area:

Find the perimeter and area of each shape:



Perimeter: _____ Area: _____



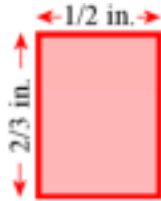
Perimeter: _____ Area: _____



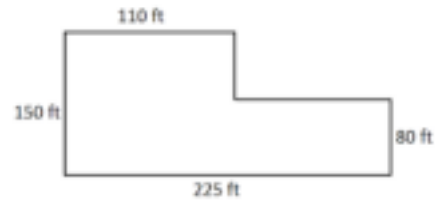
Perimeter: _____ Area: _____



Perimeter: _____ Area: _____



Perimeter: _____ Area: _____



Perimeter: _____ Area: _____

ANSWER KEY

| | | |
|--|---|---|
| <p>Page 2</p> <ol style="list-style-type: none"> 1. 1112 2. 498 3. 2990 4. 67 5. 111 6. 110 7. 4 8. 428 | <p>Page 3</p> <ol style="list-style-type: none"> 1. 7800 2. 763 3. 345 4. 1314 5. 7536 6. 63675 7. 594 8. 531 9. 3639 10. 288 11. 1712 12. 108 | <p>Page 4</p> <ol style="list-style-type: none"> 1. 16 2. 17 3. 8 4. 11 5. 42 6. 1 7. 7 8. 10 9. 21 |
| <p>Page 5</p> <ol style="list-style-type: none"> 1. $2 \times 2 \times 2 \times 2 \times 2$ 2. $2 \times 2 \times 5 \times 5$ 3. $2 \times 2 \times 2 \times 3 \times 3$ 4. $2 \times 2 \times 2 \times 2 \times 3$ 5. $2 \times 2 \times 3 \times 3$ 6. $2 \times 3 \times 3 \times 3$ | <p>Page 6</p> <ol style="list-style-type: none"> 1. 18 2. 18 3. 12 4. 8 5. 25 6. 7 7. 5 8. 8 | <p>Page 7</p> <ol style="list-style-type: none"> 1. 24 2. 12 3. 35 4. 36 5. 18 6. 36 7. 30 8. 28 |
| <p>Page 8</p> <ol style="list-style-type: none"> 1. 62.34 2. 1.4997 3. 11.29 4. 2.243 5. 76.49 6. .1972 7. 23.29 8. 0.27 9. 2.2 10. 28.26 11. 3.61 12. 16.329 | <p>Page 9-10</p> <ol style="list-style-type: none"> 1. 0.378 2. 7.08 3. 10.395 4. 13.068 5. 4.3248 6. 0.3 7. 96 8. 1.64 9. 262 10. 300 | <p>Page 11 (these are some possible answers)</p> <ol style="list-style-type: none"> 1. $\frac{8}{10}$, $\frac{16}{20}$, $\frac{12}{15}$ 2. $\frac{2}{3}$, $\frac{20}{30}$, $\frac{40}{60}$ 3. $\frac{2}{14}$, $\frac{3}{21}$, $\frac{4}{28}$ 4. $\frac{8}{20}$, $\frac{4}{10}$, $\frac{2}{5}$ 5. $\frac{6}{15}$, $\frac{2}{5}$, $\frac{24}{60}$ 6. $\frac{3}{4}$, $\frac{12}{16}$, $\frac{24}{32}$ 7. $\frac{4}{18}$, $\frac{6}{27}$, $\frac{8}{36}$ 8. $\frac{2}{5}$, $\frac{28}{70}$, $\frac{140}{350}$ 9. $\frac{9}{14}$, $\frac{36}{56}$, $\frac{180}{280}$ 10. $\frac{2}{3}$, $\frac{40}{60}$, $\frac{8}{12}$ |

| | | |
|---|---|---|
| <p>Page 12</p> <ol style="list-style-type: none"> 1. $7/2$ 2. $3 \frac{1}{2}$ 3. $23/3$ 4. $5 \frac{1}{6}$ 5. $43/5$ 6. $8 \frac{2}{9}$ 7. $25/9$ 8. $4 \frac{5}{11}$ 9. $125/10$ 10. $9 \frac{5}{13}$ | <p>Page 13</p> <ol style="list-style-type: none"> 1. $13/15$ 2. $10/21$ 3. $7/10$ 4. $3/8$ 5. $1/6$ 6. $1/18$ 7. $29/36$ 8. $1 \frac{8}{15}$ 9. $37/48$ 10. $1/2$ 11. $12/33$ 12. $7/18$ | <p>Page 14</p> <ol style="list-style-type: none"> 1. $1/15$ 2. $4/35$ 3. $2/9$ 4. $9/32$ 5. $1/10$ 6. $7/30$ 7. $3/11$ 8. $5/27$ 9. $9/35$ 10. $10/39$ 11. $1/5$ 12. $1/5$ |
| <p>Page 15</p> <ol style="list-style-type: none"> 1. $p=38\text{cm}$, $a=84 \text{ sq cm}$ 2. $p=166\text{m}$, $a=1710 \text{ sq m}$ 3. $p=8.1 \text{ cm}$, $a=4.07 \text{ sq cm}$ 4. $p=38\text{cm}$, $a=80.64 \text{ sq cm}$ 5. $p= 2 \frac{1}{3}\text{in}$, $a=1/3 \text{ sq in}$ 6. $p=750 \text{ ft}$, $a=25,700 \text{ sq ft}$ | | |