SPSG Summer Math Reinforcement Packet Created for Students Entering into SPSG 6th Grade in the Fall 2023

Dear Students and Parents: The purpose of a summer math packet is to review math concepts that are often forgotten during the long break from school. Most of the concepts in this packet were covered in 4th grade.

- Your completed packet will be checked for effort and completion during the first week of school.
- Please show all your work (when possible) to earn full effort credit.
- PLEASE DO NOT USE A CALCULATOR TO COMPLETE ANY OF THE WORK.
- A parent's signature will be required to earn a full effort/completion grade.
- Please pace yourself... completing 10 – 15 problems per week is a perfect pace.

An additional review tool to use is IXL, and online math program, which focuses on skills for the upcoming year. 30-minute practice sessions each week are very beneficial.

Have a wonderful summer!

The SPSG Math Department

Student's First Name: _____ Last Name: _____

The work in this packet was completed independently (without a calculator) by my daughter.

Parent Signature: _____ Date: _____

NO CALCULATOR! SHOW ALL WORK!

Whole Numbers – Adding and Subtracting

A) 451 + 23 + 659	B) 700 – 128
$\overset{1\ 1}{4}51$ 23 $+\ 659$ 1134	$\overset{6\ 9\ 10}{\cancel{7}\cancel{0}\cancel{0}}$ -128 572

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

A) 653 x 29

$$\begin{array}{r} {\scriptstyle 1\ \ 1} \\ 653 \\ \times\ 29 \\ \hline 5877 \\ +13060 \\ \hline 18937 \end{array}$$

1820 ÷ 28

$$\begin{array}{r} 65 \\ 28\overline{)1820} \\ -168 \\ \hline 140 \\ -140 \end{array}$$

$$\begin{array}{rr} 28 & 28 \\ \times\ 6 & \times\ 5 \\ \hline 168 & 140 \end{array}$$

NO CALCULATOR! SHOW ALL WORK!

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

Order of Operations

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. $(9\cdot 2)+18\div 6$

Greatest Common Factor

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

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

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.
2) Annex zeros to hold place.
3) Add or subtract vertically.
4) Bring down the decimal point.

$4.1 + 3 + 5.61 + 21$

$$\begin{array}{r} 4.10 \\ 3.00 \\ 5.61 \end{array}$$

$16 - 7.498$

$$\begin{array}{r} 16.000 \\ -\ 7.498 \\ \hline 8.502 \end{array}$$

NO CALCULATOR! SHOW ALL WORK!

1. $42.78 + 19.56$	2. $0.0997 + 1.4$	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. $21.007 - 4.678$

Decimals – Multiplying and Dividing

Rules:

Multiplying

1) Line up digits, starting on the right.
2) Multiply
3) Place the decimal point in the answer by starting at the right and moving a number of places equal to the sum of the decimal places in both numbers multiplied.

(6.432)(4.15)

6.432 (3 decimal places)
x 4.15 (2 decimal places)
32160
64320
2572800
26.69280 (5 decimal places)

Dividing

1) If the divisor is not a whole number, move the decimal point To the right to make it a whole number and move the decimal Point in the dividend the same number of places.
2) Divide.
3) Bring the decimal point up.

27.216 ÷ 4.8

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   5.67
48.)272.16
  -240
   321
  -288
    336
   -336
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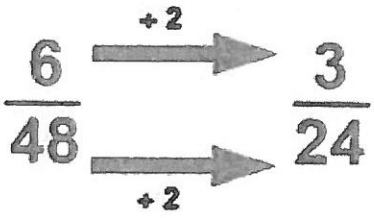
NO CALCULATOR! SHOW ALL WORK!

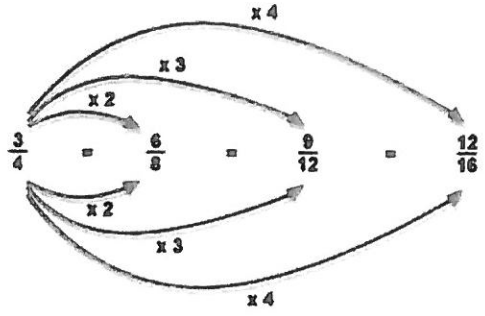
1. 5.4 x 0.07	2. 5.9 x 1.2
3. 69.3 x 0.15	4. 3.96 x 3.3

5. 9.01 x 0.48	6. 0.24 ÷ 0.8
7. 84.48 ÷ 0.88	8. 6.56 ÷ 4
9. 34.06 ÷ 0.13	10. 147 ÷ 0 .49

Equivalent Fractions

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

Multiply the whole number by the denominator and add the numerator.

Keep the same denominator.

Then add.

$4\frac{1}{3} = \frac{13}{3}$

Multiply.

Convert $\frac{20}{3}$ to a mixed number

Divide the numerator by the denominator

$20 \div 3 = 6$ plus 2 remainder

$\frac{20}{3} = 6\frac{2}{3}$

6 becomes the whole number
2 is the numerator of the fraction as shown
3 is the denominator

Convert to Mixed Number or Improper Fractions:

1. $3\frac{1}{2} =$	2. $\frac{15}{2} =$
3. $7\frac{2}{3} =$	4. $\frac{31}{6} =$
5. $8\frac{3}{5} =$	6. $\frac{74}{9} =$
7. $2\frac{7}{9} =$	8. $\frac{49}{11} =$
9. $12\frac{5}{10} =$	10. $\frac{122}{13} =$

Fractions – Adding and Subtracting

$\frac{3}{4}+\frac{1}{3}=$

$\frac{9}{12}+\frac{4}{12}=$

$\frac{13}{12}=1\frac{1}{12}$

If the denominators are different, find the least common multiple of the two numbers and convert both fractions to the matching common denominator.

$\frac{5}{6}-\frac{3}{9}=$

$\frac{15}{18}-\frac{6}{18}=$

$\frac{11}{18}$

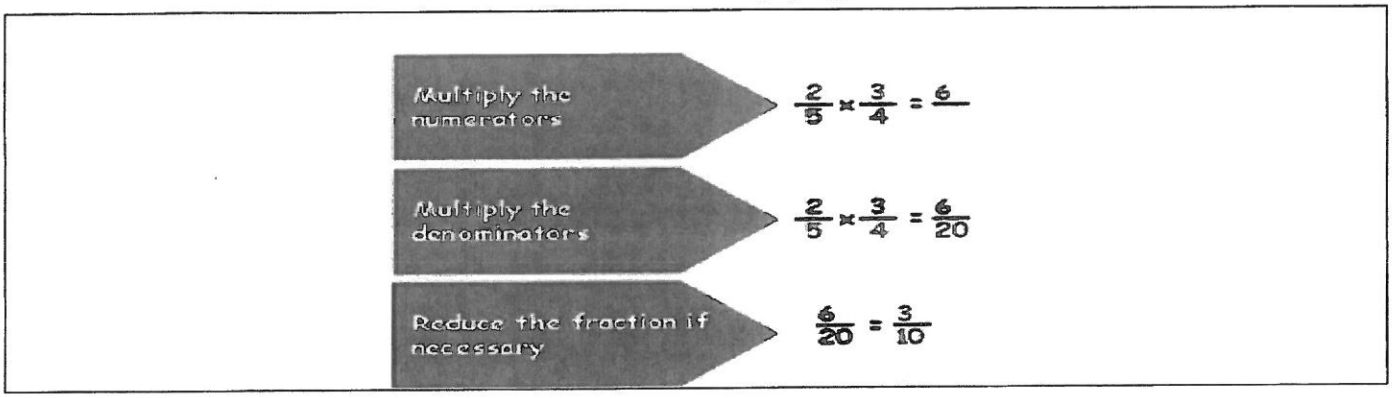
NO CALCULATOR! SHOW ALL WORK!

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 – Adding and Subtracting Mixed Numbers

13. $1\frac{1}{8} + 2\frac{1}{4} =$	14. $3\frac{3}{4} - 2\frac{1}{8} =$	15. $2\frac{2}{3} - 1\frac{1}{6} =$
16. $5\frac{1}{5} - 2\frac{2}{3} =$	17. $1\frac{1}{2} + \frac{5}{6} =$	18. $4\frac{5}{6} - \frac{1}{2} =$
19. $5 - \frac{1}{5} =$	20. $9\frac{7}{9} + 3\frac{2}{7} =$	21. $6\frac{1}{8} - 3\frac{3}{5} =$

Fractions – Multiplying



NO CALCULATOR! SHOW ALL WORK!

1. $\frac{1}{3} x \frac{1}{5} =$	2. $\frac{2}{7} x \frac{2}{5} =$	3. $\frac{4}{9} x \frac{1}{2} =$
4. $\frac{3}{8} x \frac{3}{4} =$	5. $\frac{9}{10} x \frac{1}{9} =$	6. $\frac{7}{12} x \frac{2}{5} =$
7. $\frac{6}{11} x \frac{2}{4} =$	8. $\frac{5}{6} x \frac{2}{9} =$	9. $\frac{12}{20} x \frac{3}{7} =$
10. $\frac{5}{13} x \frac{4}{6} =$	11. $\frac{15}{25} x \frac{5}{15} =$	12. $\frac{6}{10} x \frac{3}{9} =$

Fractions – Multiplying Mixed Numbers

(hint: cross cancel!)

13. $1\frac{1}{2} \times 2\frac{2}{3} =$	14. $3\frac{1}{4} \times 1\frac{5}{6} =$	15. $3\frac{1}{5} \times \frac{3}{8} =$

Fractions – Dividing

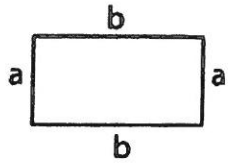
16. $\frac{1}{2} \div 2 =$	17. $\frac{3}{8} \div \frac{1}{4} =$	18. $2\frac{2}{5} \div \frac{6}{7} =$
19. $1\frac{1}{2} \div 2\frac{2}{3} =$	20. $3\frac{1}{5} \div \frac{3}{8} =$	21. $3\frac{1}{4} \div 1\frac{5}{6} =$

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

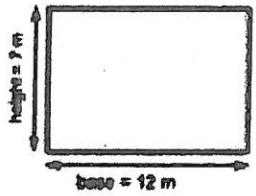
Perimeter (P) = 3 + 5 + 3 + 5 = 16 units

Area:

Area of Rectangle

The area of a Rectangle equals the base times the height

$A = b \times h$

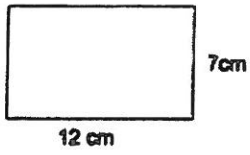


$A = b \times h$

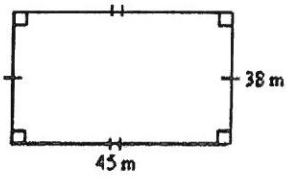
$A = 12 \times 7$

$A = 84\ m^2$

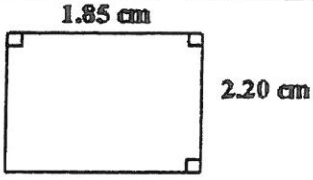
Find the perimeter and area of each shape:



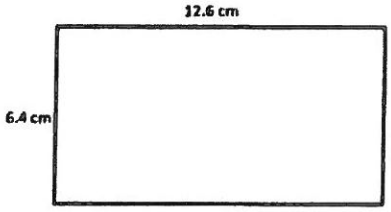
Perimeter:_____ **Area:**_____



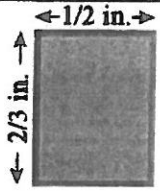
Perimeter:_____ **Area:**_____



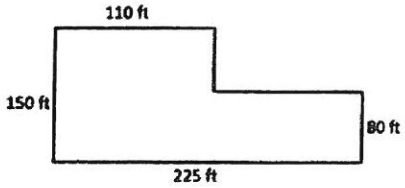
Perimeter:_____ **Area:**_____



Perimeter:_____ **Area:**_____



Perimeter:_____ **Area:**_____



Perimeter:_____ **Area:**_____