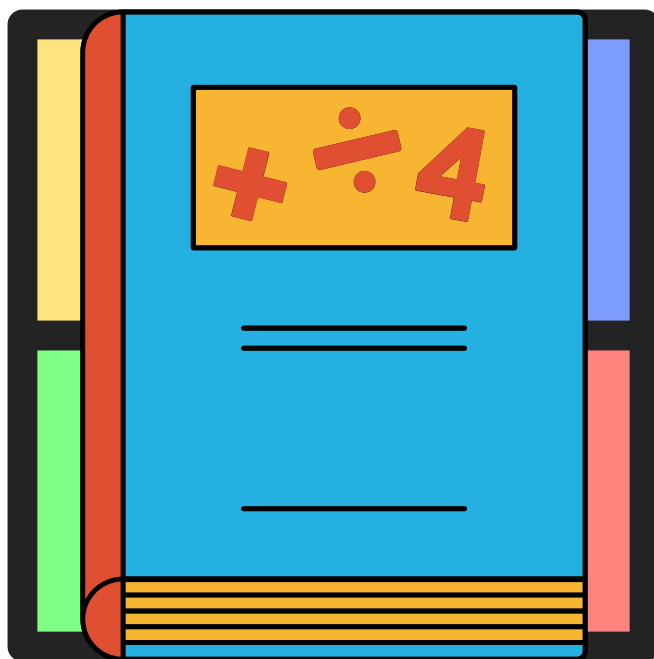


SUMMER MATH PACKET



For students entering Grade 8

NAME: _____

Operation with Decimals: Simplify. Re-write each problem and show your work. Do NOT use a calculator!

1.) $5.038 + 2.96$

2.) $16 + 1.6 + 0.517$

3.) $27 - 10.4$

4.) $9.006 - 4.44$

5.) $4.8 \cdot 6.9$

6.) $0.05 \cdot 0.7$

7.) $17.03 \div 9$

8.) $4.82 \div 45$

9.) $3.25 \div 0.5$

10.) $23.24 \div 2.8$

Operations with Fractions: Simplify. Write your answer in lowest terms. Do NOT use a calculator!

1.) $\frac{3}{8} + \frac{1}{4}$

2.) $6\frac{1}{2} + 3\frac{1}{9}$

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

4.) $6 + 3\frac{3}{8}$

5.) $2\frac{1}{6} + 2\frac{7}{8}$

6.) $7\frac{1}{8} - 2\frac{3}{4}$

7.) $20 - 8\frac{3}{4}$

8.) $\frac{5}{9} \div \frac{1}{3}$

9.) $\frac{11}{12} \cdot 3$

10.) $\frac{5}{16} \cdot \frac{4}{5}$

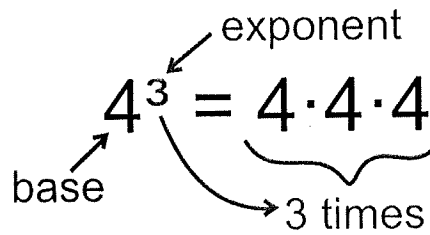
11.) $5\frac{1}{2} \cdot 4\frac{3}{4}$

12.) $3 \cdot 5\frac{2}{3}$

13.) $5 \div \frac{2}{5}$

14.) $9\frac{1}{4} \div 2\frac{1}{4}$

Exponents: Follow the directions for each section.



Write each exponent in *expanded form*.

Example: $5^3 = 5 \cdot 5 \cdot 5$

1.) $4^8 =$

2.) $3^5 =$

3.) $6^6 =$

*challenge 4.) $x^4 =$

Write each in *exponential form*.

Example: $3 \cdot 3 \cdot 3 \cdot 3 = 3^4$

5.) $7 \cdot 7 \cdot 7 =$

6.) $3 \cdot 3 \cdot 8 \cdot 8 \cdot 8 \cdot 8 =$

*challenge 7.) $x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y =$

8.) $9 \cdot 9 \cdot 9 \cdot 9 =$

Evaluate. Show your work.

Example: $2^3 = 2 \cdot 2 \cdot 2 = 8$

9.) $5^3 =$

10.) $3^4 =$

11.) $6^3 =$

12.) $9^2 =$

13.) $13^2 =$

*challenge 14.) $4^2 \cdot 3^3 =$

Order of Operations: Simplify. Show your work and box your answer.

Example: $13^2 - 2 \cdot 5 + (12 \div 2^2)$
 $169 - 2 \cdot 5 + (12 \div 4)$
 $169 - 2 \cdot 5 + 3$
 $169 - 10 + 3$
 $159 + 3$
162

Order of Operations

P	P: Parenthesis () E: Exponents 5^2 M: Multiplication \times D: Division \div A: Addition $+$ S: Subtraction $-$
E	
M D	Purple Elephants May Destroy A School.
A S	

1.) $[36 \div (3 \cdot 4)] + 2$

2.) $60 - 7(5 + 6 \div 2) + 2^4$

3.) $4 + 6(5 - 2)$

4.) $2 + 8 \cdot 3^2$

5.) $24 - 6 \cdot 2$

6.) $4 \cdot 9 + 7 \cdot 8$

7.) $102 - 2^4(3^4 - 51)$

8.) $14 + 8 \div 2 - 1$

9.) $\frac{63 - 8}{3 + 8} - 2$

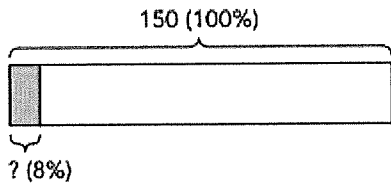
10.) $5 \cdot \frac{19 - 7}{5 + 1}$

Percent of a Quantity: Solve each problem. Show your work!

Example

What is 8% of 150?

Method 1



The model shows that:

$$100\% \rightarrow 150$$

$$1\% \rightarrow \frac{150}{100} = 1.5$$

$$8\% \rightarrow 8 \times 1.5 = 12$$

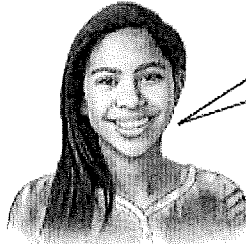
$$8\% \text{ of } 150 \text{ is } \underline{12}.$$

Method 2

$$8\% \text{ of } 150 = \frac{8}{100} \times 150$$

$$= \underline{12}$$

$$8\% \text{ of } 150 \text{ is } \underline{12}.$$



"of" means "×". In this case, 8% of 150 is the same as 8% × 150.

1.) 35% of 900

Method 1

2.) 115% of \$360

Method 1

3.) 82% of 450

Method 2

4.) 170% of 2,100 ft

Method 2

Choose the method you like best to complete the following problems.

5.) 35% of 125 miles

6.) 46% of 340 gallons

7.) 65% of 180 pounds

8.) 75% of 72 hours

9.) 120% of \$590

10.) 245% of 860 kilograms

Percent of a Quantity - Continued: Solve each problem. Show your work!

Example

15% of a number is 180. Find the number.

$$15\% \rightarrow 180$$

$$1\% \rightarrow \frac{180}{15}$$

$$100\% \rightarrow \frac{100 \times 180}{15} = 1,200$$

The number is 1,200.

1.) 40% of a number is 180.

Find the number.

$$40\% \rightarrow 180$$

$$1\% \rightarrow \underline{\hspace{2cm}}$$

$$100\% \rightarrow \underline{\hspace{3cm}}$$

The number is .

2.) 75% of a number is 230.

Find the number.

$$75\% \rightarrow 230$$

$$1\% \rightarrow \underline{\hspace{2cm}}$$

$$100\% \rightarrow \underline{\hspace{3cm}}$$

The number is .

3.) 25% of is 195.

4.) 56% of is 70.

5.) 18% of is 99.

6.) 92% of is 345.

7.) 55% of is 143.

8.) 350% of is 679.

9.) 47% of is 141.

10.) 125% of is 85.

Writing Algebraic Expressions:

Words and Phrases to Math Symbols

Use the key words to write an algebraic expression. Simplify if possible.

1.) One-eighth of m .

2.) The product of x and 7.

3.) Subtract 2 from x .

4.) The sum of m and n .

5.) Subtract the product of 5 and x from 7.

6.) Divide y by the sum of 9 and x .

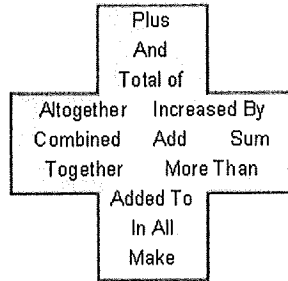
7.) Subtract the cube of y from 15.

9.) 13 less than 5 divided by p .

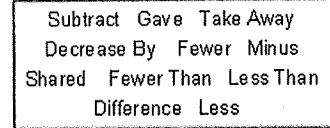
11.) 12 less than 3 times a number y .

13.) one-third of the product of $5p$ and 3.

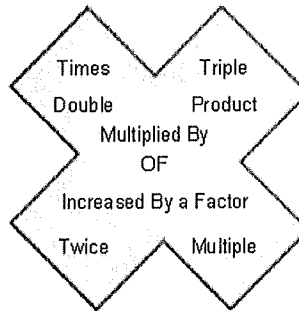
Addition



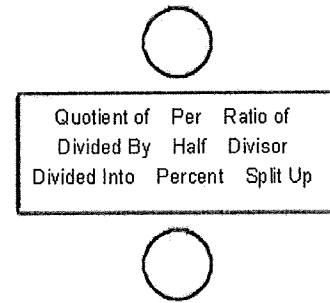
Subtraction



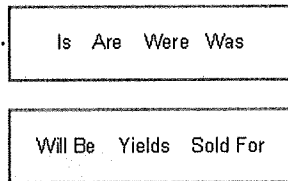
Multiplication



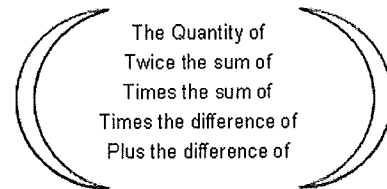
Division



Equals



Parenthesis Words



8.) 4 times the sum of 10 and x .

10.) 5 more than the product of 3 and c .

12.) 6 less than the sum of 5 and y .

14.) the product of $5x$ and 7 divided by 13.



Simplifying Algebraic Expressions: Simplify each expression by combining like terms. Box the algebraic terms and circle the numeric terms in each expression.

Example:

$$\textcircled{8} + 3j - \textcircled{5} - 2j + 8j$$

$$\textcircled{8 - 5} + 3j - 2j + 8j$$

$$3 + j + 8j$$

$$3 + 9j$$

Regroup like terms

Add numeric terms; combine algebraic terms

1.) $12c - 3c - 3c$

2.) $5j + 2j + 9j$

3.) $9k + 3k - 2k$

4.) $8y - 5y + 2y$

5.) $5t + 4 + 2t$

6.) $6m - 10 - 2m - m$

7.) $7r + 5r - 12$

8.) $20 + 5u + 10u - 20 - 14u$

9.) $20 + 12k - 7k - 8$

10.) $6x + 15 + 9x - 10x - 8$

Expanding Algebraic Expressions: Expand each expression. Show your work!

Example: $4(5a+7)$

$= 4 \cdot 5a + 4 \cdot 7$

$= 20a + 28$

Multiply each term inside the parentheses by 4.

1.) $3(p+9)$

2.) $7(4x+2)$

3.) $10(3-2x)$

4.) $9(2x-9)$

5.) $6(3-4d)$

6.) $2(12+5y)$

7.) $4(3g+5)$

8.) $8(11-6a)$

9.) $7(4x+5y)$

10.) $3(8m-3n)$

11.) $3(2a+6b+3c)$

12.) $5(7x+8y-3z)$

Factoring Algebraic Expressions: Factor each expression by taking out the GCF. Show your work!

Example: $56x - 7$
 $= 7 \cdot 8x - 7 \cdot 1$ The GCF of 56 and 7 is 7.
 $= 7(8x - 1)$

1.) $3 - 24t$

2.) $6a + 24$

3.) $5y + 20$

4.) $6 + 42h$

5.) $3b - 21$

6.) $3x + 15y$

7.) $15w - 5$

8.) $4n - 28$

9.) $8 + 8a$

10.) $16g - 24h$

11.) $5a + 20b + 35c$

12.) $15x - 12y + 36z$

One-Step Equations: Solve. Show your work! Box your answer.

1.) $x - 8 = 15$

2.) $x + 15 = 6$

3.) $5x = 6$

4.) $\frac{x}{8} = 6$

5.) $x - 8 = 12$

6.) $6 + x = 15$

7.) $1.3x = 2.6$

8.) $\frac{x}{9} = 12$

9.) $\frac{2}{3}x = 18$

10.) $\frac{5}{6}x = 10$

Identifying Ordered Pairs

A) Write the point that is located at each ordered pair.

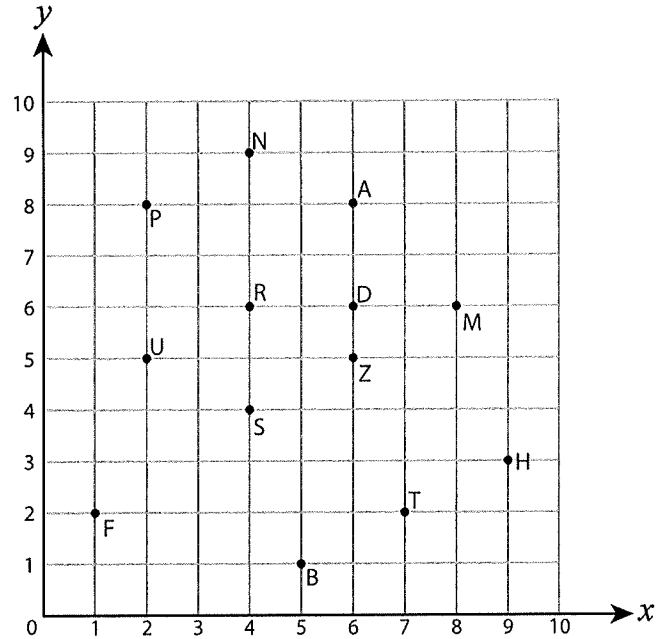
1) (2, 5) _____ 2) (4, 6) _____

3) (9, 3) _____ 4) (7, 2) _____

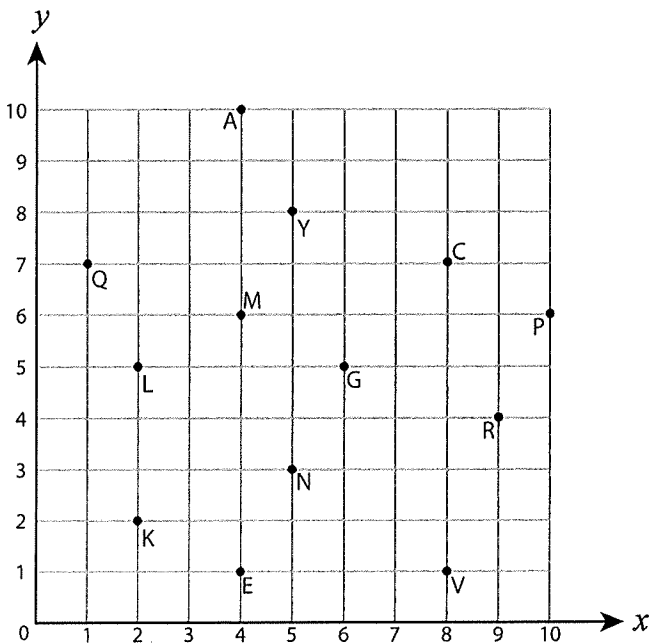
5) (6, 6) _____ 6) (8, 6) _____

7) (4, 9) _____ 8) (4, 4) _____

9) (5, 1) _____ 10) (1, 2) _____



B) Write the ordered pair for each point.



11) G (__ , __)

12) V (__ , __)

13) R (__ , __)

14) C (__ , __)

15) E (__ , __)

16) L (__ , __)

17) Q (__ , __)

18) A (__ , __)

19) Y (__ , __)

20) K (__ , __)

Identifying Ordered Pairs

A) Write the point that is located at each ordered pair.

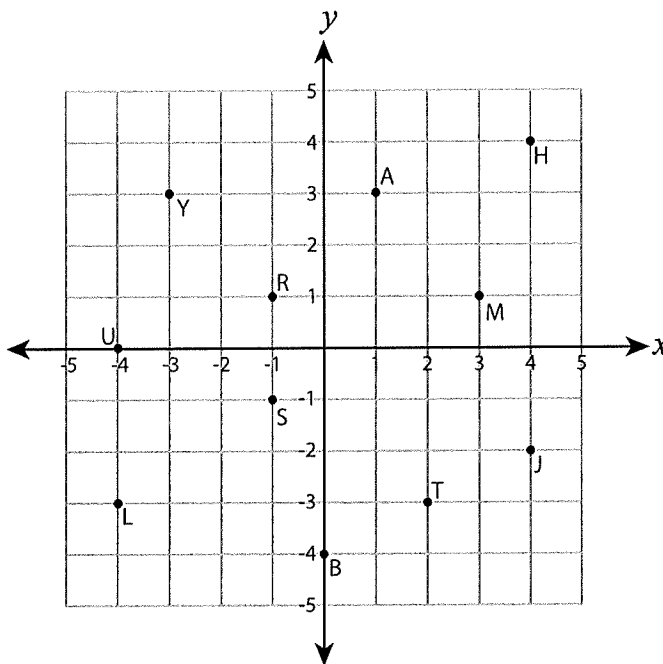
1) $(1, 3)$ _____ 2) $(-4, 0)$ _____

3) $(-1, 1)$ _____ 4) $(4, -2)$ _____

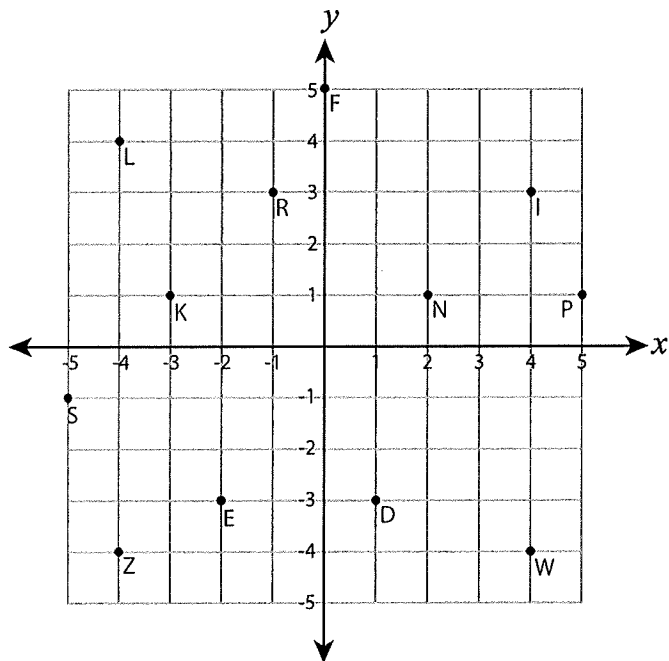
5) $(2, -3)$ _____ 6) $(3, 1)$ _____

7) $(4, 4)$ _____ 8) $(0, -4)$ _____

9) $(-3, 3)$ _____ 10) $(-4, -3)$ _____



B) Write the ordered pair for each point.



11) L (____, ____)

12) S (____, ____)

13) E (____, ____)

14) K (____, ____)

15) N (____, ____)

16) F (____, ____)

17) I (____, ____)

18) P (____, ____)

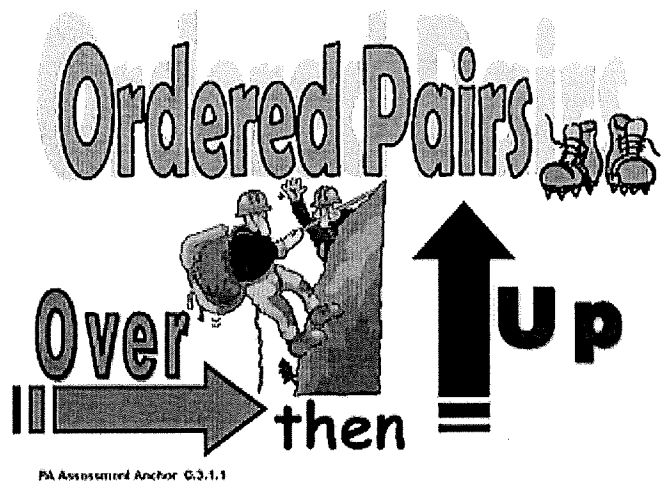
19) D (____, ____)

20) Z (____, ____)

Plotting Points

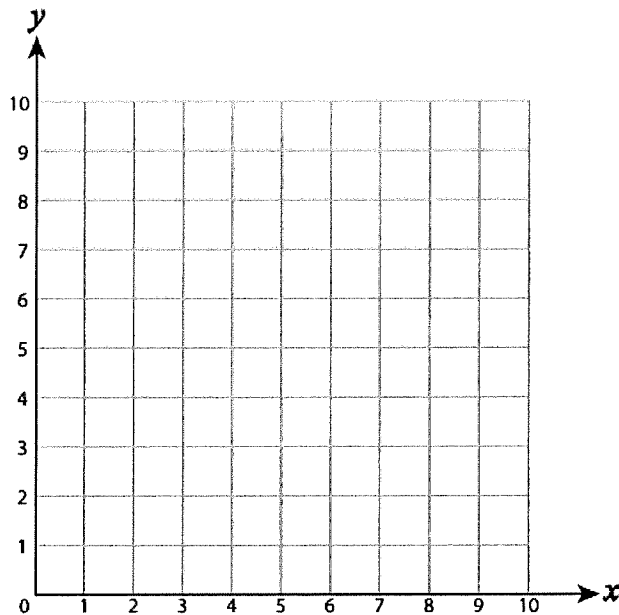
(x, y)

Ordered Pair



A) Plot each point on the coordinate grid.

- | | |
|------------|-------------|
| 1) T(3, 3) | 2) S(1, 8) |
| 3) H(2, 8) | 4) E(6, 2) |
| 5) R(5, 4) | 6) L(7, 6) |
| 7) M(3, 1) | 8) V(9, 5) |
| 9) P(7, 1) | 10) A(4, 7) |



A) Plot each point on the coordinate grid.

- | | |
|--------------|--------------|
| 1) D(-2, 3) | 2) H(-1, -5) |
| 3) K(2, 2) | 4) U(2, 4) |
| 5) E(-1, -1) | 6) L(-3, 5) |
| 7) P(0, 5) | 8) A(-3, -4) |
| 9) C(1, 4) | 10) G(-1, 0) |

