

Dear Rising 7th Grade Families,

In an effort to help all families and students make the transition from 6th grade math to 7th grade math, we have put together a packet of optional enrichment problems. The packet will not be collected or graded at any point. These problems have been compiled to provide extra practice and review of previously taught concepts. We are providing this so that all families have an idea of what skills and concepts will be used and built on during the 7th grade math year.

To be best prepared for 7th grade math when we return in August, the following is a list of prerequisite skills for the class:

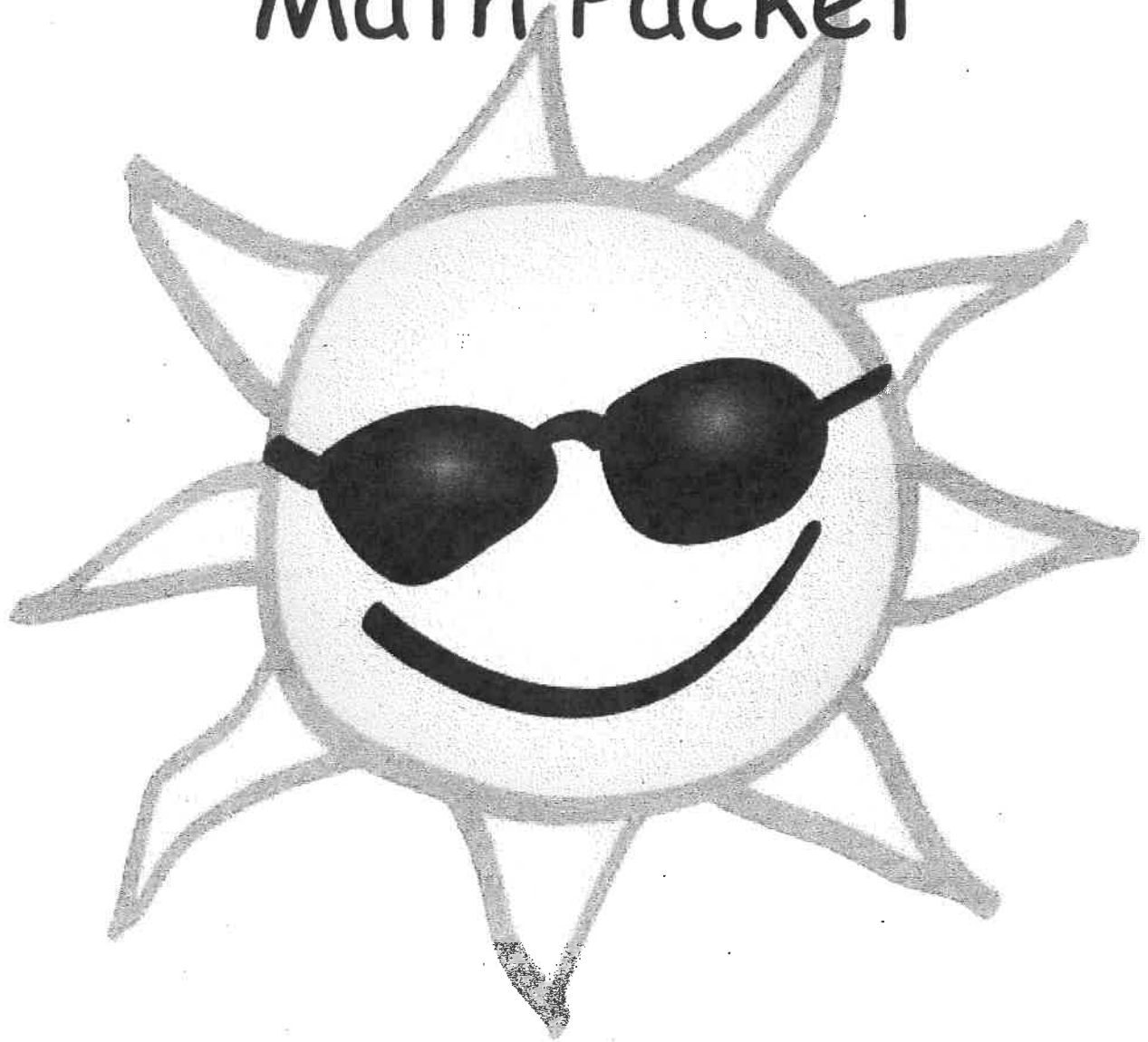
1. All operations involving fractions, decimals, and percents
2. All operations of integers
3. Percents
4. Simplifying numerical expressions (order of operations)
5. Exponents
6. Translating and simplifying algebraic expressions
7. Combining like terms
8. Distributive property and factoring of algebraic expressions
9. Solving one-step equations
10. Plotting ordered pairs

Near the end of Semester 1, after students have strengthened and practiced their number sense, they will begin using calculators to tackle more complex problems. All students will be required to have a TI-84, TI-84 Plus, or TI - 84 Plus CE calculator that will be used in math and science classes from 7th grade to 12th grade.

If you have any questions or would like additional information about the math program, please contact Amanda Peper, the Mathematics Department chair, at amanda.peper@popeprep.org.

Sincerely,
Arynn Powers

Summer Math Packet



For students entering:

Math 7

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

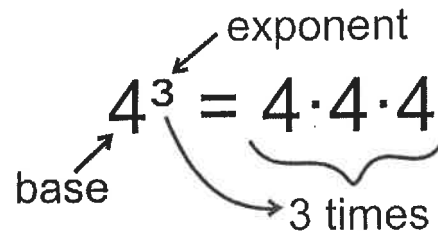
11.) $5\frac{1}{2} \cdot 4\frac{3}{4}$

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.) $x \cdot x \cdot y \cdot y \cdot y \cdot y =$

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.) $6^3 =$

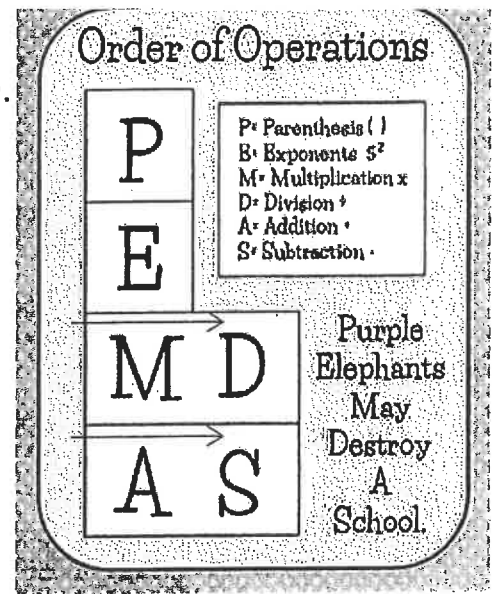
12.) $9^2 =$

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



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

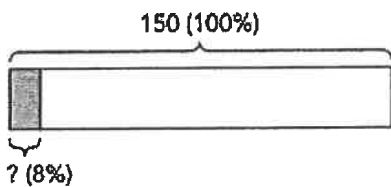
10.) $5 \cdot \frac{19 - 7}{5 + 1}$

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

$$15\% \rightarrow 180$$

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

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

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.

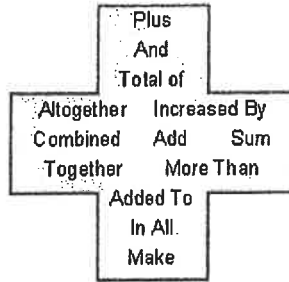
10.) 125% of is 85.

Writing Algebraic Expressions:

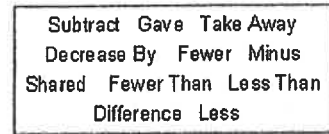
Words and Phrases to Math Symbols

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

Addition



Subtraction



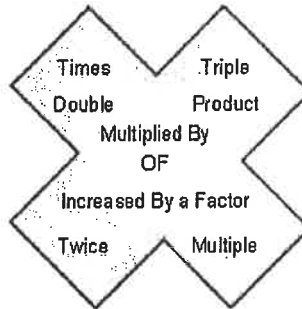
1.) One-eighth of m.

2.) The product of x and 7.

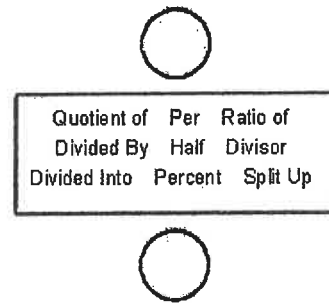
3.) Subtract 2 from x.

4.) The sum of m and n.

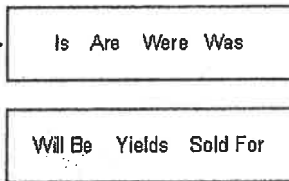
Multiplication



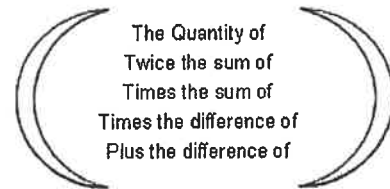
Division



Equals



Parenthesis Words



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.

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:

$$\begin{array}{l} \textcircled{8} + \boxed{3j} - \textcircled{5} - \boxed{2j} + \boxed{8j} \\ \textcircled{8-5} + \boxed{3j-2j+8j} \\ 3 + j + 8j \\ 3 + 9j \end{array}$$

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.

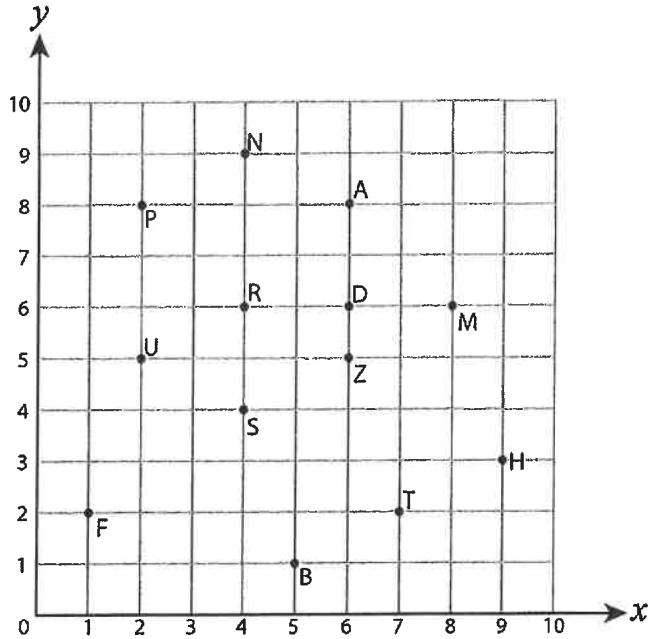
1) (2, 5) _____ 2) (4, 6) _____

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

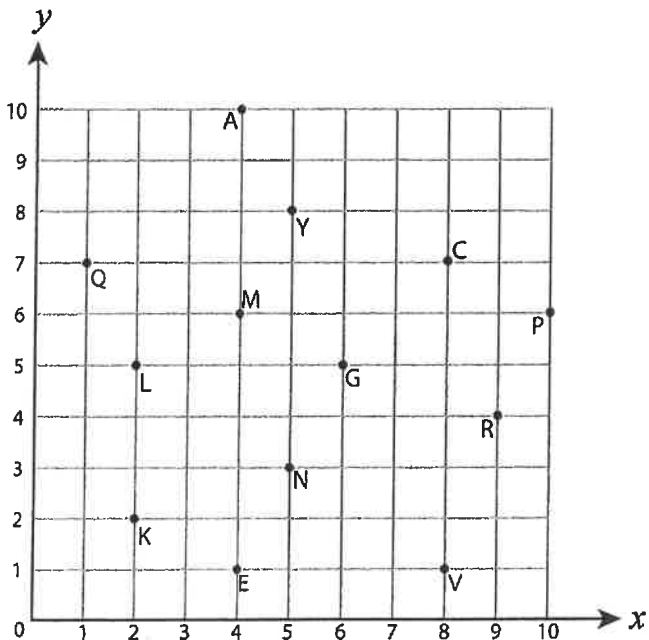
5) (6, 6) _____ 6) (8, 6) _____

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.

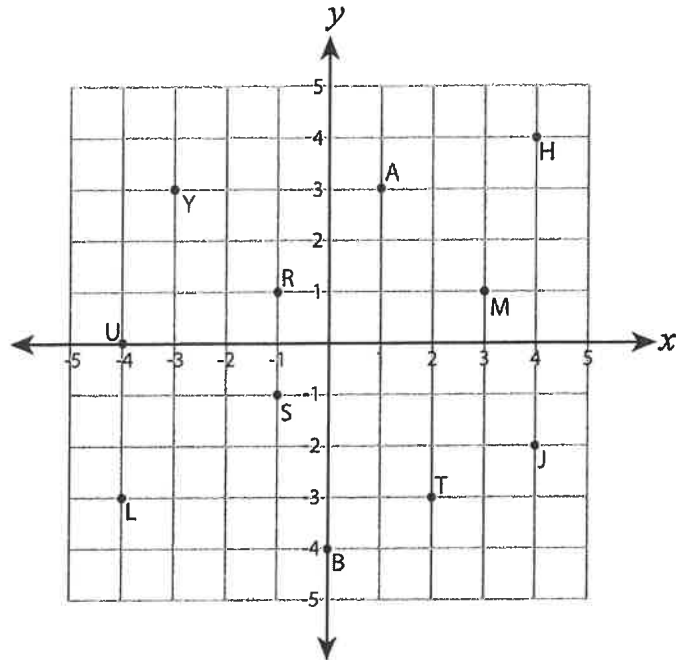
1) (1, 3) _____ 2) (-4, 0) _____

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

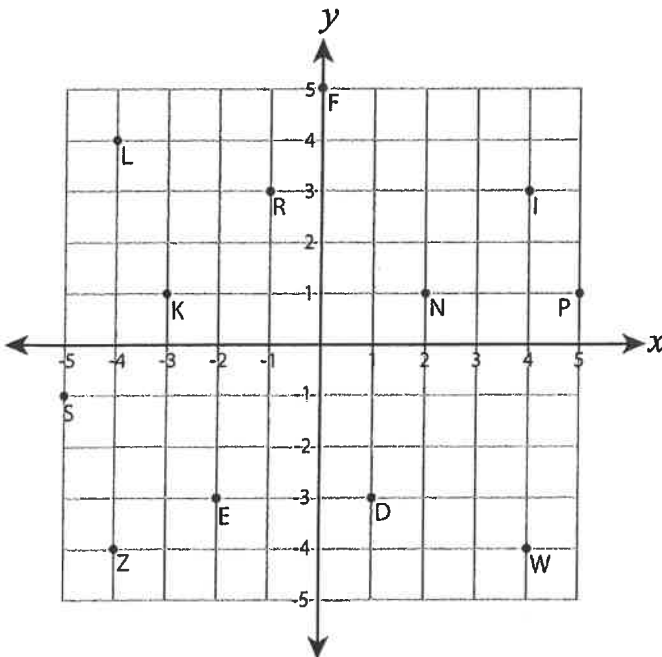
5) (2, -3) _____ 6) (3, 1) _____

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

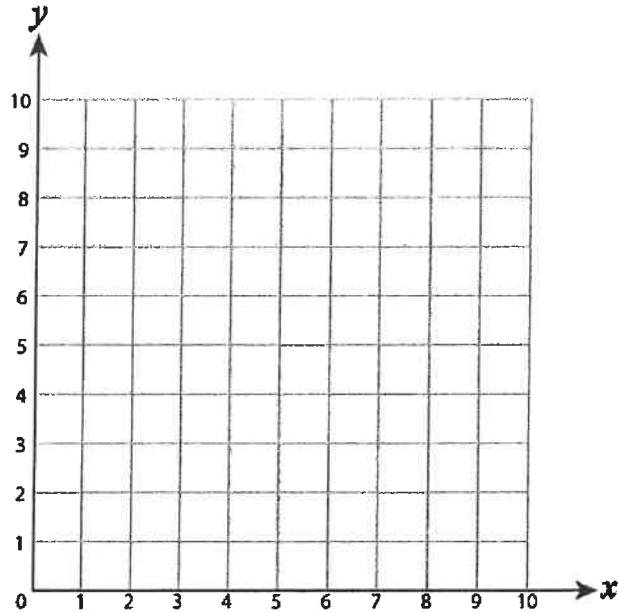
(x, y)

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) |

