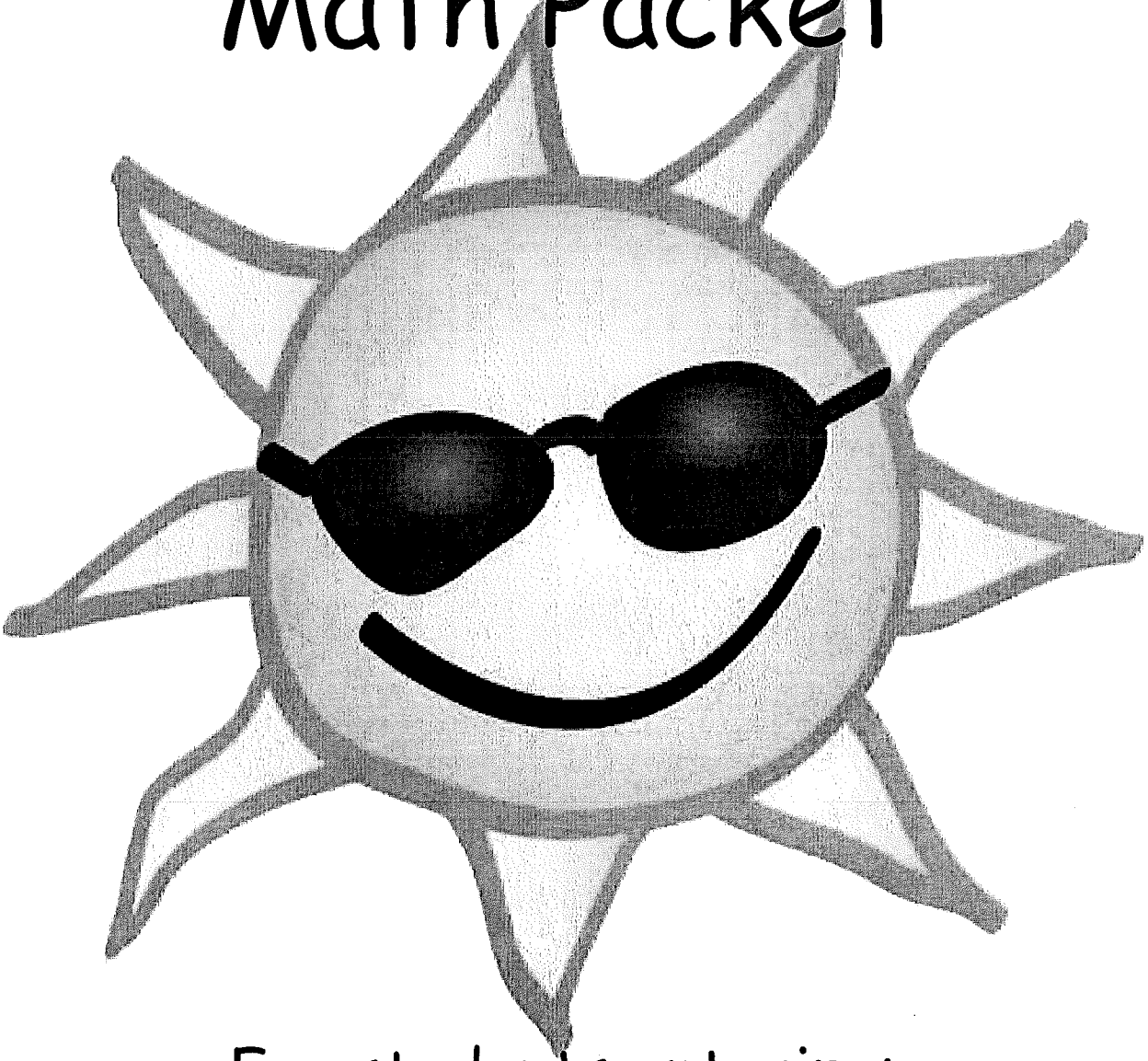
Summer

Math Packet



For students entering:

Enriched Math 7/Accelerated Math

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.) $4.82 \div 45$

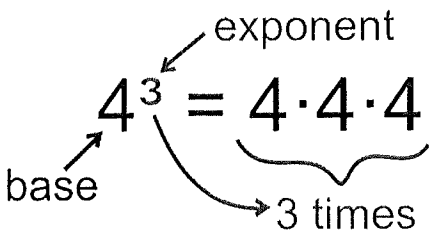
9.) $3.25 \div 0.5$

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.) $3^4 =$

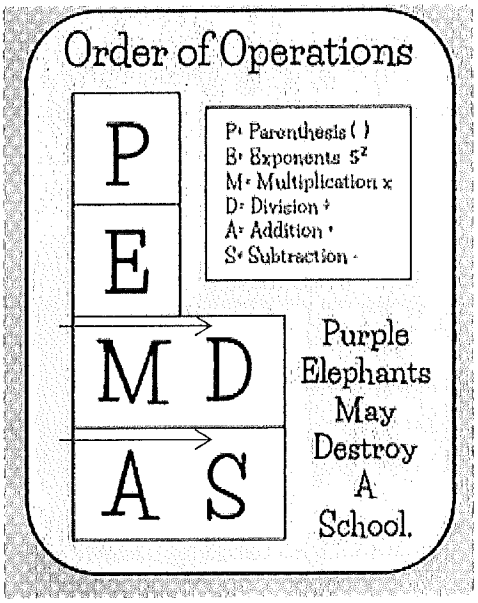
11.) $6^3 =$

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:

$13^2 - 2 \cdot 5 + (12 \div 2^2)$

$169 - 2 \cdot 5 + (12 \div 4)$

$169 - 2 \cdot 5 + \quad 3$

$169 - \ 10 \ + \quad 3$

$159 \quad + \quad 3$

$\boxed{162}$

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

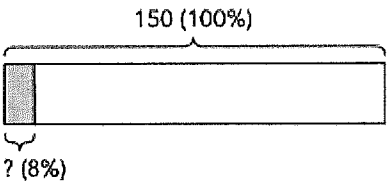
10.) $5 \cdot \dfrac{19-7}{5+1}$

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

Example

What is 8% of 150?

Method 1



The model shows that:

100% → 150

1% → $\frac{150}{100} = 1.5$

8% → $8 \times 1.5 = 12$

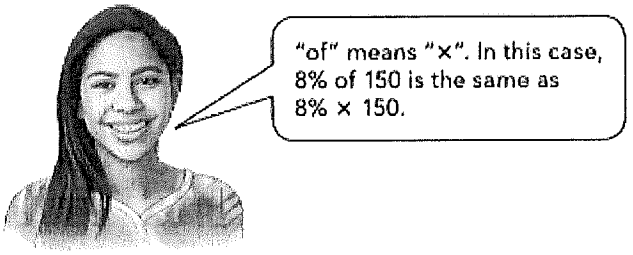
8% of 150 is 12.

Method 2

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

$= 12$

8% of 150 is 12.



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% → 180

1% → $\frac{180}{15}$

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

The number is 1,200.

1.) 40% of a number is 180.

Find the number.

40% → 180

1% → _____

100% → _____

The number is _____.

2.) 75% of a number is 230.

Find the number.

75% → 230

1% → _____

100% → _____

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.

Percent Word Problems: Show your work! BOX your answer.

1.) Out of 30 questions, Ahmad answered 12 of them incorrectly. What percent of the questions did he answer correctly?

2.) 2.85 kilograms of sugar is mixed with 3.15 kilograms of flour. What percent of this mixture is sugar?

3.) 28% of the amount in Keith's savings is $350. How much money does Keith have in his savings?

4.) Of the 1,640 students enrolled at a school, 50% come to school by bus, 35% come by car, and the rest of the students walk to school. How many students walk to school?

5.) Of the 400 people at the school carnival, 95% are students and the rest are teachers.

a) How many students are at the school carnival?

b) If 55% of the students at the school carnival are boys, how many are girls?

c) How many teachers are at the school carnival?

d) If 35% of the teachers are male and the rest are female, how many female teachers are at the carnival?

Writing Algebraic Expressions:

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

1.) One-eighth of m.

_____

2.) Multiply x by the sum of 7 and y.

_____

3.) Subtract 2 from x, then add y.

_____

4.) Add m and n, then square the result.

_____

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

_____

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

_____

Words and Phrases to Math Symbols

Addition

Plus
And
Total of
Altogether Increased By
Combined Add Sum
Together More Than
Added To
In All
Make

Subtraction

Subtract Gave Take Away
Decrease By Fewer Minus
Shared Fewer Than Less Than
Difference Less

Multiplication

Times Triple
Double Product
Multiplied By
OF
Increased By a Factor
Twice Multiple

Division

Quotient of Per Ratio of
Divided By Half Divisor
Divided Into Percent Split Up

Equals

Is Are Were Was

Will Be Yields Sold For

Parenthesis Words

The Quantity of
Twice the sum of
Times the sum of
Times the difference of
Plus the difference of

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7.) Subtract the cube of y from 15.

_____

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

_____

9.) 13 less than the quotient of 5 divided by p.

_____

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

_____

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

_____

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

_____

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

_____

14.) 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: $8 + 3j - 5 - 2j + 8j$

$8 - 5 + 3j - 2j + 8j$ Regroup like terms

$3 + j + 8j$ Add numeric terms; combine algebraic terms

$3 + 9j$

1.) $12 - 8 + 5d + 4d - 6d$

2.) $18 + 4n - 9 + 8n - 11n$

3.) $20 + 5u + 10u - 20 - 14u$

4.) $20 + 12k - 7k - 8$

5.) $6x + 15 + 9x - 10x - 8$

6.) $r + 9 + 10r - 5 - 4r$

Solve (Write an expression and combine like terms).

7.) Kevin works $3z$ hours each day from Monday to Friday. He works $(4z - 7)$ on Saturday. Kevin does not work on Sunday. Find the number of hours Kevin works in one week in terms of z.

8.) Kelly leaves her home and cycles $4y$ miles south, then cycles $(3y + 9)$ miles east. Finally, she cycles $(5y + 7)$ miles south and reaches her school. How far does Kelly cycle?

9.) Shanti baked $5p$ croissants. Jon baked twice as many croissants as Shanti. Ching baked 16 fewer croissants than Jon. Find the total number of croissants they baked in terms of p.

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

Example: $4(5a+7)$

$= 4 \cdot 5a + 4 \cdot 7$ *Multiply each term inside the parentheses by 4.*

$= 20a + 28$

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

Name : _____ Score : _____

Identifying Ordered Pairs

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

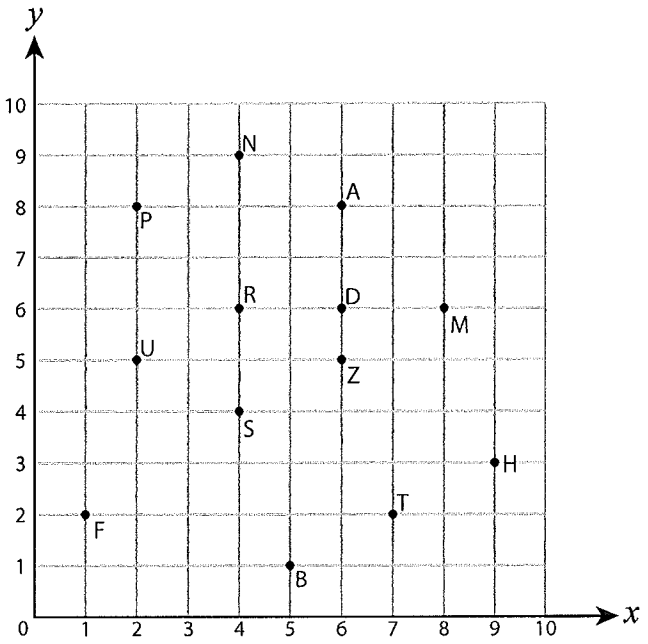
1) (2, 5) _____ 2) (4, 6) _____

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

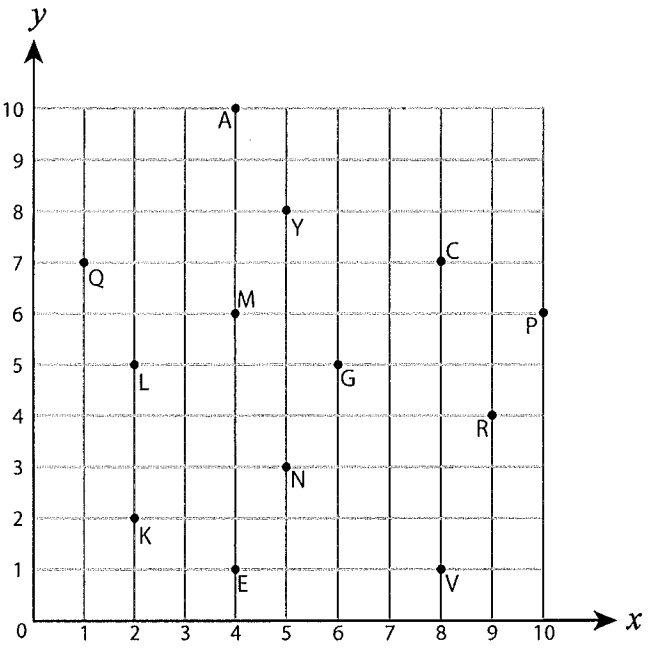
5) (6, 6) _____ 6) (8, 6) _____

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 (___ , ___)

Name : _____ Score : _____

Identifying Ordered Pairs

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

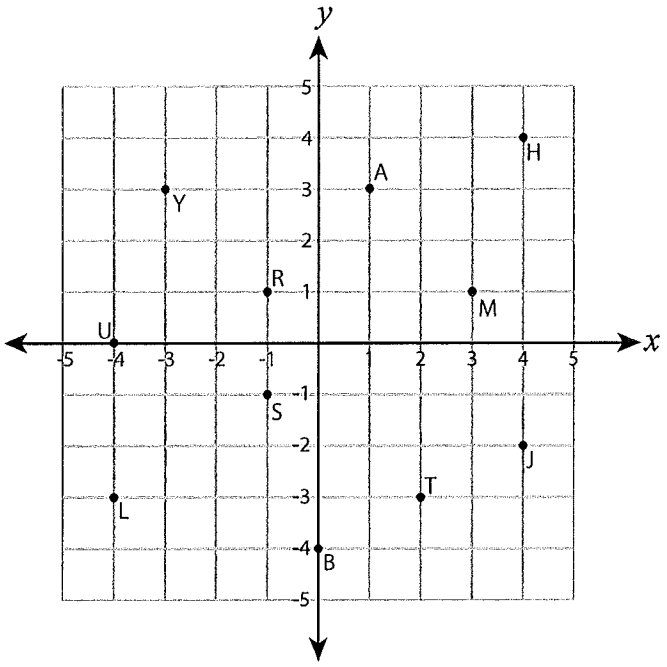
1) (1, 3) _____ 2) (-4, 0) _____

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

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

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

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



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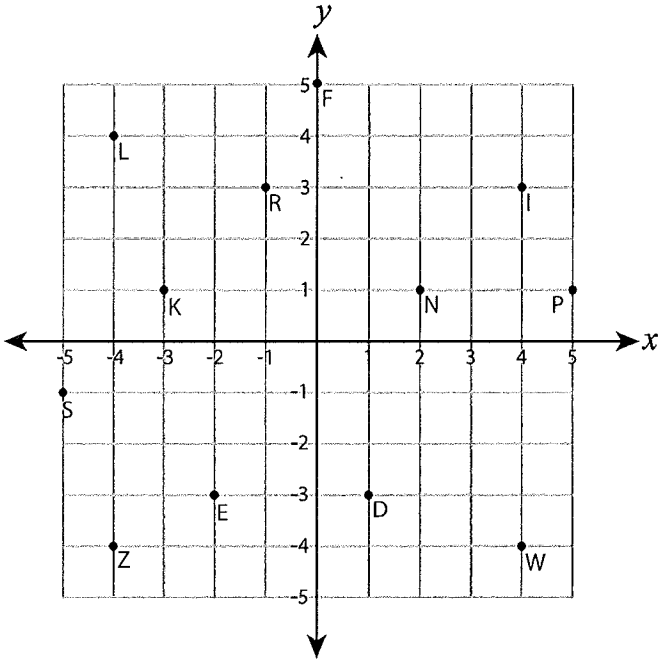


11) L(___ , ___) 12) S(___ , ___)

13) E(___ , ___) 14) K(___ , ___)

15) N(___ , ___) 16) F(___ , ___)

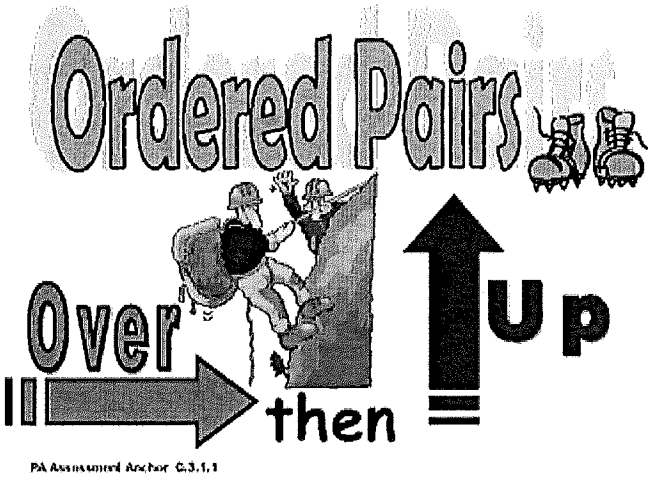
17) I (___ , ___) 18) P(___ , ___)

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)

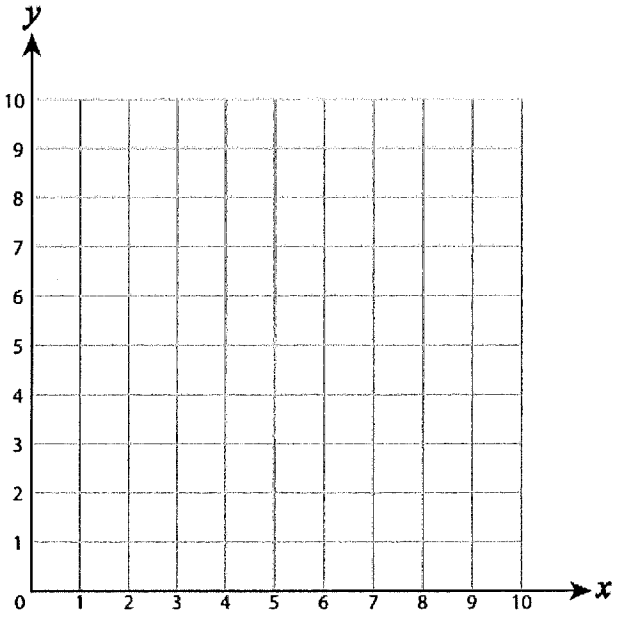
6) L(7, 6)

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)

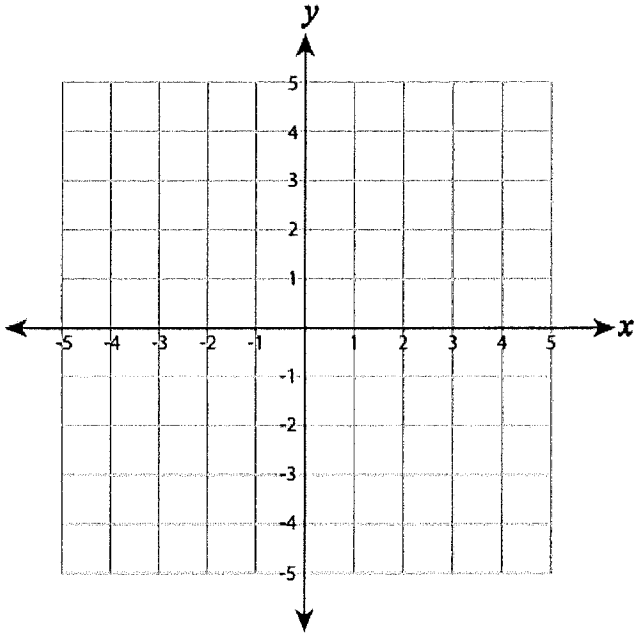
6) L(-3, 5)

7) P(0, 5)

8) A(-3, -4)

9) C(1, 4)

10) G(-1, 0)



CHALLENGE

Integer Operations: Simplify. Do NOT use a calculator.

Integer rules You can use these to make flashcards to help you remember the rules

Addition

Same sign—keep and add

Different signs subtract, keep the sign of the bigger (whole) number than you'll be exact.

Subtraction

You will turn it into an addition.

Keep the first sign

Change the second sign

Change the third sign

Then you follow the addition rules.

Multiplication

(+) x (+) = +

(-) x (-) = +

(+) x (-) = -

(-) x (+) = -

Division

(+) / (+) = +

(-) / (-) = +

(+) / (-) = -

(-) / (+) = -

1.) $-7+12=$	2.) $\frac{45}{-3}=$	3.) $9-(-17)=$
4.) $23+(-8)=$	5.) $-6(-17)=$	6.) $-12+(-11)=$
7.) $\frac{-165}{-5}=$	8.) $-8-(-14)=$	9.) $18+(-5)=$
10.) $9\cdot(-13)=$	11.) $-56\div 4=$	12.) $24-(-7)=$
13.) $19+(-21)=$	14.) $-16-(-9)=$	15.) $-9+8=$