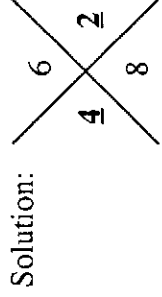
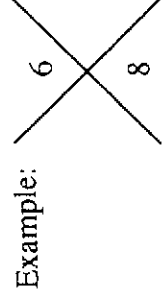
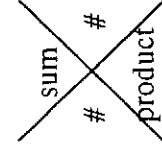
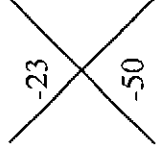
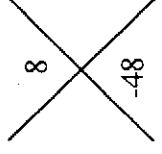
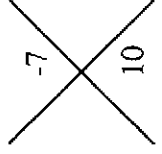
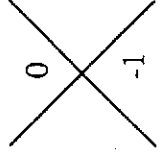
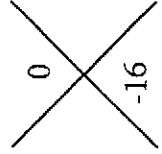
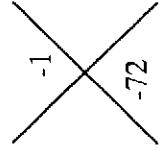
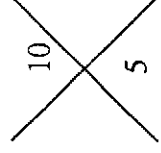
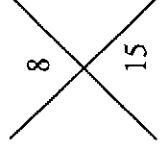
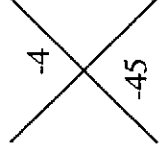
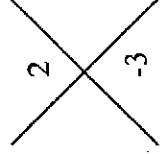
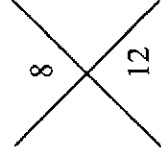
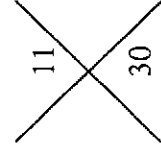


Name: \_\_\_\_\_  
 Block: \_\_\_\_\_ Date: \_\_\_\_\_

**PART ONE:** Solve the following diamond problems.



The solution is 4 and 2 (the order doesn't matter) because  $4+2 = 6$  and  $4 \times 2 = 8$ .



**PART TWO:** Use the distributive property to multiply the following expressions.

Example:  $3x(x+2)$  Solution:  $3x(x+2) = 3x^2 + 6x$

1.  $-2(3x + 2x^2) =$

2.  $-x^2(2 - x) =$

3.  $\frac{1}{2}(4x^2 + 2x + 8) =$

4.  $5y(-2x + 7y) =$

5.  $-5a(2a - 3ab^2) =$

6.  $-\frac{2}{3}x(9x^2 + 6x + 21) =$

**PART THREE:** Factor out the greatest common factor in the following expressions. (Hint: It is the opposite of what you did in Part Two. However, do NOT factor out fractions—only whole numbers and variables.)

Example:  $6x + 9x^2$  Solution:  $6x + 9x^2 = 3x(2 + 3x)$

1.  $8xy - 4x =$

2.  $-36x^2 - 12x^3 =$

3.  $5ab - a =$

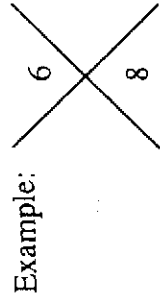
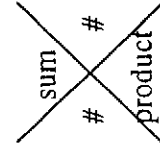
4.  $12x - 7y =$

5.  $14x^2 - 35x =$

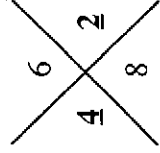
6.  $3x^2 + 6x + 12 =$

Name: \_\_\_\_\_  
 Block: \_\_\_\_\_ Date: \_\_\_\_\_

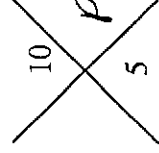
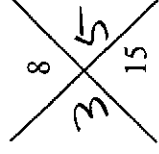
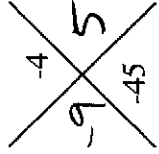
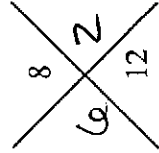
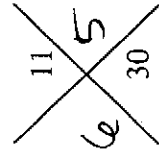
**PART ONE:** Solve the following diamond problems.



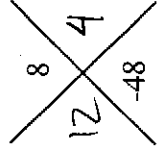
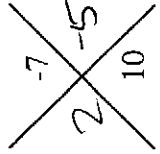
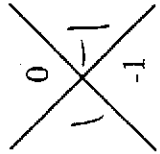
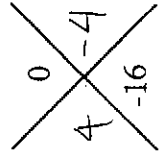
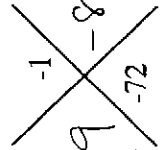
Solution:



The solution is 4 and 2 (the order doesn't matter) because  $4+2 = 6$  and  $4 \times 2 = 8$ .



prime



**PART TWO:** Use the distributive property to multiply the following expressions.

Example:  $3x(x+2)$  Solution:  $3x(x+2) = 3x^2 + 6x$

1.  $-2(3x+2x^2) =$

2.  $-x^2(2-x) =$

3.  $\frac{1}{2}(4x^2+2x+8) =$

4.  $5y(-2x+7y) =$

5.  $-5a(2a-3ab^2) =$

6.  $-\frac{2}{3}x(9x^2+6x+2) =$

**PART THREE:** Factor out the greatest common factor in the following expressions. (Hint: It is the opposite of what you did in Part Two. However, do NOT factor out fractions—only whole numbers and variables.)

Example:  $6x+9x^2$  Solution:  $6x+9x^2 = 3x(2+3x)$

1.  $8xy-4x =$

2.  $-36x^2-12x^3 =$

3.  $5ab-a =$

4.  $12x-7y =$

5.  $14x^2-35x =$

6.  $3x^2+6x+12 =$

Algebra III  
Factoring

Name \_\_\_\_\_  
Date \_\_\_\_\_  
Period \_\_\_\_\_

Factor completely!

1.  $2x^2 - x$

2.  $2x + 4$

3.  $x^2 - 6x - 16$

4.  $x^2 - 11x + 30$

5.  $x^2 + 8x + 16$

6.  $x^2 - 25$

7.  $x^2 + 7x - 30$

8.  $4x^2 - 25$

9.  $2x^2 + 3x - 20$

10.  $2x^2 + 2x - 24$

11.  $x^2 + 9$

12.  $64 - 9x^2$

13.  $4x^2 - 64$

14.  $6x^3 - 5x^2 - 4x$

15.  $2x^2 - 18$

16.  $x^4 - 16$

Algebra III  
Factoring

Name \_\_\_\_\_  
Date \_\_\_\_\_  
Period \_\_\_\_\_

Factor completely!

1.  $2x^2 - x$   
 $x(2x - 1)$

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

3.  $x^2 - 6x - 16$   
 $(x - 8)(x + 2)$

4.  $x^2 - 11x + 30$   
 $(x - 6)(x - 5)$

5.  $x^2 + 8x + 16$   
 $(x + 4)(x + 4)$

6.  $x^2 - 25$   
 $(x - 5)(x + 5)$

7.  $x^2 + 7x - 30$   
 $(x + 10)(x - 3)$

8.  $4x^2 - 25$   
 $(2x - 5)(2x + 5)$

9.  $2x^2 + 3x - 20$   
 $(x + 4)(2x - 5)$   
 $x + \frac{8}{2} \quad x - \frac{5}{2}$   
 $\frac{3}{-40}$

10.  $2x^2 + 2x - 24$   
 $2(x^2 + x - 12)$   
 $2(x + 4)(x - 3)$

11.  $x^2 + 9$   
prime

12.  $64 - 9x^2$   
 $(8 - 3x)(8 + 3x)$

13.  $4x^2 - 64$   
 $4(x^2 - 16)$   
 $4(x - 4)(x + 4)$

14.  $6x^3 - 5x^2 - 4x$   
 $x(6x^2 - 5x - 4)$   
 $x(3x + 4)(2x - 1)$   
 $x + \frac{8}{6} \quad x - \frac{1}{2}$   
 $\frac{-5}{-24}$

15.  $2x^2 - 18$   
 $2(x^2 - 9)$   
 $2(x + 3)(x - 3)$

16.  $x^4 - 16$   
 $(x^2 - 4)(x^2 + 4)$   
 $(x - 2)(x + 2)(x^2 + 4)$