Find the GCF

IXL: AA1

33

$8x^2$

22

10xy

18xyz

$25a^3b^2$

$24x^3z$

$40a^2b^3$

Find the GCF

IXL: AA1

33

$8x^2$

22

10xy

18xyz

$25a^3b^2$

$24x^3z$

$40a^2b^3$

Algebra 1 8-5A Name_____ Pd____

Greatest Common Factor

GCF: the largest factor that divides into 2 or more terms.
Numbers – list the factors of each term and use the largest that is a factor for all the terms.
Variables – Only use variables that are in every term. Use the lowest power of each variable from the terms.

Example – the GCF of $40xy^2$ and $24x^3y^5$ is $8xy^2$

Factoring out a GCF

A Factor is a a number that evenly divides another.
Factoring is the opposite of the distributive property.
You can check any factor question by using the distributive property.

Steps

1. Find the GCF. This sits in front of the ().
2. Each term is divided by the GCF and the answer to the division is written inside the ().

Example: Factor GCF from $4xy^2 + 8xy - 20x^2$ The GCF is 4x Factored: $4x(y^2 + 2y - 5x)$

Use the Distributive Property to factor each polynomial.

1. $21b - 15a$

2. $14c^2 + 2c$

3. $10g^2h^2 + 9gh^2 - g^2h$

4. $12jk^2 + 6j^2k + 2j^2k^2$

Use the Distributive Property to factor each polynomial.

15. $16t - 40y$

16. $30v + 50x$

17. $2k^2 + 4k$

18. $5z^2 + 10z$

19. $4a^2b^2 + 2a^2b - 10ab^2$

20. $5c^2v - 15c^2v^2 + 5c^2v^3$

AA1 and
IXL: AA2

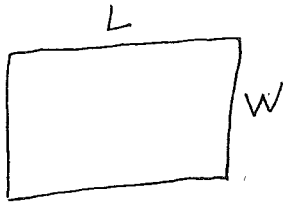
Algebra Challenge Questions for 8-5

① Factor out the GCF

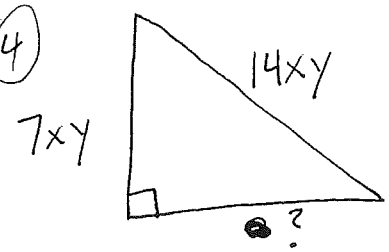
$4x^3y^2z^4 - 16x^2yz^3 + 40x^7y^{10}z^5$

② Factor out the GCF

$10x^2y + 40xz^6 - 80y^7z^4$

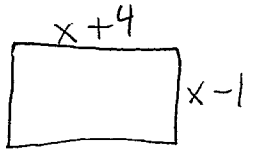
③ 

In the rectangle, the Area is $40x^2y + 120xy^2$
The width is $10x$
Find the length.

④ 

Triangle Area is $35x^2y^2$
Find the Perimeter.

⑤ Given $12xy^2 + 18x^2y^n = 6xy^2(2 + 3xy^{\square})$
Fill in the box.

⑥ 

The perimeter is 32
Find the area.

Algebra Challenge Questions for 8-5 Key

① Factor out the GCF

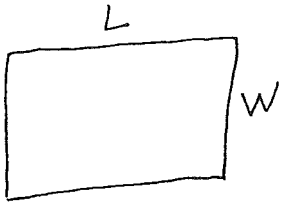
$4x^3y^2z^4 - 16x^2yz^3 + 40x^7y^{10}z^5$

$4x^2yz^3(xyz - 4 + 10x^5y^9z^2)$

② Factor out the GCF

$10x^2y + 40xz^6 - 80y^7z^4$ no variables are common

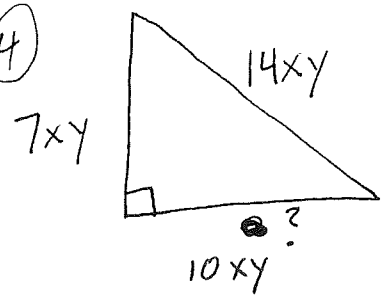
$10(x^2y + 4xz^6 - 8y^7z^4)$

③ 

In the rectangle, the Area is $40x^2y + 120xy^2$
The width is $10x$
Find the length.

$40x^2y + 120xy^2 = 10x(4xy + 12y^2)$

length is $4xy + 12y^2$

④ 

Triangle Area is $35x^2y^2$
Find the Perimeter.

Δ Area $= \frac{1}{2}bh$

$35x^2y^2 = \frac{1}{2}(7xy)(\quad)$

$35x^2y^2 = 3.5xy(10xy)$

Perim $= 7xy + 10xy + 14xy = 31xy$

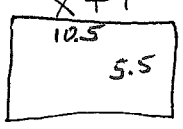
⑤ Given $12xy^2 + 18x^2y^n = 6xy^2(2 + 3x^{n-2})$ $(n=2)$

$n = 2$

Fill in the box.

$6xy^2(2 + 3xy)$

when y^2 is pulled out front the power on y will decrease by 2

⑥ 

The perimeter is 32
Find the area.

$P = L + L + W + W$

$32 = x+4 + x+4 + x-1 + x-1$

$32 = 4x + 6$

$26 = 4x$

$6.5 = x$

Area $= 10.5(5.5)$

57.75

Kuta Software - Infinite Algebra 1 Name_____

Factoring Trinomials (a = 1)

Date_____ Period____

Factor each completely.

1) $b^2 + 8b + 7$

2) $n^2 - 11n + 10$

3) $m^2 + m - 90$

4) $n^2 + 4n - 12$

5) $n^2 - 10n + 9$

6) $b^2 + 16b + 64$

7) $m^2 + 2m - 24$

8) $x^2 - 4x + 24$

9) $k^2 - 13k + 40$

10) $a^2 + 11a + 18$

11) $n^2 - n - 56$

12) $n^2 - 5n + 6$

Algebra 1 **8-6A** Name_____ pd___

Factoring a trinomial

1. Make the goal post
2. Make the diamond and complete it
   The sides are the numbers that multiply to the top and add to the bottom
3. Write the factored version (+)(+)
   Note: There will be more steps in the next section

Factor each polynomial. Confirm your answers using a graphing calculator.

1. $x^2 + 14x + 24$

2. $y^2 - 7y - 30$

3. $n^2 + 4n - 21$

4. $m^2 - 15m + 50$

16. $44 + 15h + h^2$

17. $40 - 22x + x^2$

18. $-24 - 10x + x^2$

19. $-42 - m + m^2$

factor

x^2+3x+2

x^2+4x+4

$x^2+7x+10$

$x^2+7x+12$

IXL: AA4

Algebra 1 8-6B Name_____ pd___

Review:

Factor each polynomial. Confirm your answers using a graphing calculator.

12. $x^2 + 17x + 42$

13. $y^2 - 17y + 72$

14. $a^2 + 8a - 48$

15. $n^2 - 2n - 35$

Solve each equation. Check your solutions.

5. $x^2 - 4x - 21 = 0$

6. $n^2 - 3n + 2 = 0$

7. $x^2 - 15x + 54 = 0$

8. $x^2 + 12x = -32$

9. $x^2 - x - 72 = 0$

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

22. $x^2 - 6x = 27$

23. $a^2 + 11a = -18$

24. $c^2 + 10c + 9 = 0$

25. $x^2 - 18x = -32$

Solving by square roots

$x^2 = 9$

$a^2 = 49$

$x^2 + -25 = 0$

$a^2 - 36 = 0$

$x^2 + 100 = 149$

$a^2 - 8 = 56$

$x^2 - 21 = 100$

$a^2 + 20 = 189$

$2x^2 + 25 = 75$

$4a^2 = 400$

$3x^2 - 1 = 242$

$7a^2 + 30 = 1038$

$5x^2 - 2 = 3x^2 + 16$

$4(a^2 - 2) = a^2 + 100$

(*) $x^2 = -4$

BB5

Solving by factoring

Kuta Software - Infinite Algebra 1 Name_____

Solving Quadratic Equations by Factoring

Date_____ Period____

Solve each equation by factoring.

1) $(k+1)(k-5)=0$

2) $(a+1)(a+2)=0$

3) $(4k+5)(k+1)=0$

4) $(2m+3)(4m+3)=0$

5) $x^2-11x+19=-5$

6) $n^2+7n+15=5$

7) $n^2-10n+22=-2$

8) $n^2+3n-12=6$

9) $6n^2-18n-18=6$

10) $7r^2-14r=-7$

BB5 BB6

Kuta Software - Infinite Algebra 1 Name_____

Factoring Trinomials (a = 1)

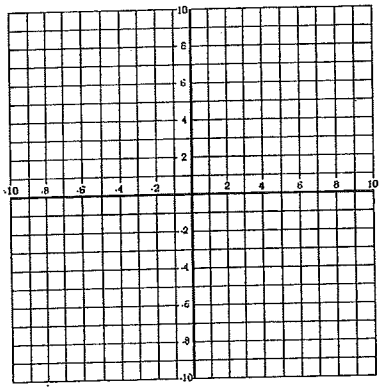
Date_____ Period____

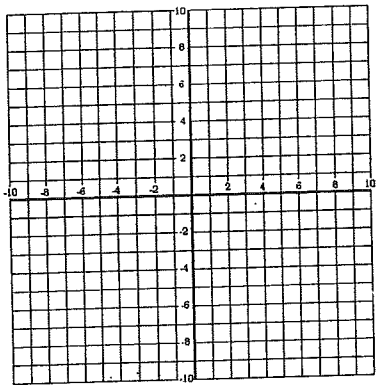
a Graphing

Factor each completely. Find the roots and vertex. Graph.

1) $b^2 + 8b + 7 = y$

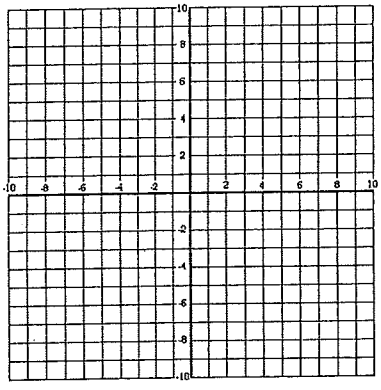
2) $n^2 - 11n + 10 = y$

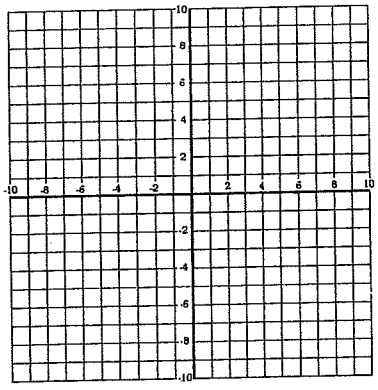




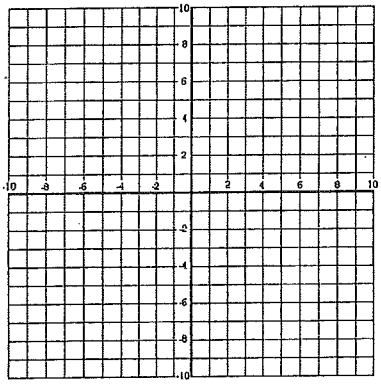
7) $m^2 + 2m - 24 = y$

8) $x^2 - 4x + 24 = y$

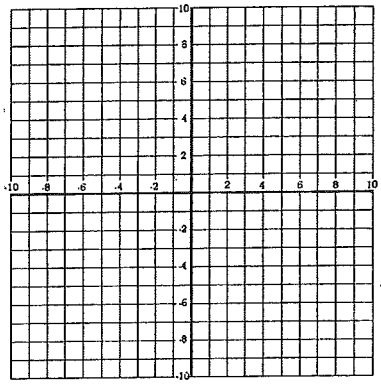




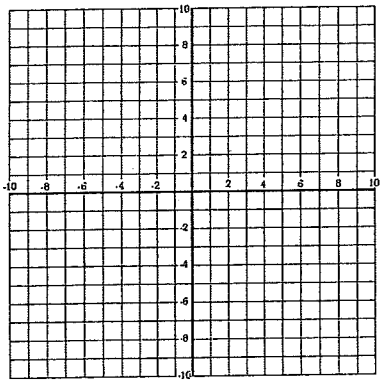
13) $b^2 - 6b + 8 = y$



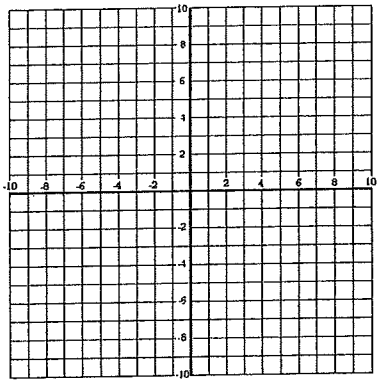
14) $n^2 + 6n + 8 = y$



19) $p^2 + 11p + 10 = y$



20) $5v^2 - 30v + 40 = y$ Factor GCF first



~~25) $p^2 + 3p - 18$~~

~~26) $6v^2 + 66v + 60$~~