Precalculus
Factoring Worksheet 1

Name Key
Period_____

Factor each polynomial completely.

1. $x^2+11x+28$

$(x+4)(x+7)$

2. x^4-8x^2-33

$(x^2-11)(x^2+3)$

3. x^3+4x^2-45x

$x(x^2+4x-45)=x(x+9)(x-5)$

4. $2x^2-x-15$

$(2x+5)(x-3)$

5. $3x^2-11x-4$

$(3x+1)(x-4)$

6. $4x^2+4x-3$

$(2x+3)(2x-1)$

7. $6x^2+5x+1$

$(3x+1)(2x+1)$

8. $10x^2+26x-12$

$2(5x^2+13x-6)$
$2(x+3)(5x-2)$

9. x^2-9

$(x+3)(x-3)$

10. $25x^2-100$

$25(x^2-4)$
$25(x+2)(x-2)$

11. $81-49y^2$

$(9-7y)(9+7y)$

12. x^3+1

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

13. $8x^3+64$ $=8(x^3+8)$

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

14. $27x^3+125y^3$

$(3x+5y)(9x^2-15xy+25y^2)$

15. x^3-8

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

16. $2x^3-54$

$2(x^3-27)$
$2(x-3)(x^2+3x+9)$

17. $64x^3-y^3$

$(4x-y)(16x^2+4xy+y^2)$

18. x^3+2x^2-4x-8

$x^2(x+2)-4(x+2)$
$(x+2)(x^2-4)$
$=(x+2)(x+2)(x-2)$

19. $ax-bx+2ay-2by$

$x(a-b)+2y(a-b)$
$(a-b)(x+2y)$

20. $3x^3+9x^2+6x+18$

$3x^2(x+9)+6(x+9)$
$(x+9)(3x^2+6)$
$3(x+9)(x^2+2)$

Precalculus
Factoring Worksheet 2

Name_____
Period_____

Factor each polynomial completely.

1. $x^2+12x+35$

$(x+7)(x+5)$

2. x^4-7x^2-44

$(x^2-11)(x^2+4)$

3. x^3+16x^2-17x

$x(x^2+16x-17)$
$x(x+17)(x-1)$

4. $2x^2+7x+6$

$(2x+3)(x+2)$

5. $3x^2-5x-2$

$(3x+1)(x-2)$

6. $6x^2-x-5$

$(6x+5)(x-1)$

7. $4x^2+28x+45$

$(2x+9)(2x+5)$

8. $15x^3-18x^2+3x$

$3x(5x^2-6x+1)$
$3x(5x-1)(x-1)$

9. x^2-64

$(x-8)(x+8)$

10. $18x^2-32$

$2(9x^2-16)$
$2(3x-4)(3x+4)$

11. $121x^2-196y^2$

$(11x+14y)(11x-14y)$

12. x^3+27

$(x+3)(x^2-3x+9)$

13. $2x^3+128$

$2(x^3+64)$
$2(x+3)(x^2-3x+9)$

14. $64x^3+216y^3$

$8(8x^3+27y^3)$
$8(2x+3y)(4x^2-6xy+9y^2)$

15. x^3-1

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

16. $2x^3-16$

$2(x^3-8)$
$2(x-2)(x^2+2x+4)$

17. $125x^3-8y^3$

$(5x-2y)(25x^2+10xy+4y^2)$

18. $ax-ay+bx-by$

$a(x-y)+b(x-y)$
$(x-y)(a+b)$

19. x^3+x^2-4x-4

$x^2(x+1)-4(x+1)$
$(x+1)(x^2-4)$
$(x+1)(x+2)(x-2)$

20. $2x^3+6x^2+6x+18$

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

Name_____

Factoring Trinomials (a > 1)

Date_____ Period____

Factor each completely.

1) $3p^2 - 2p - 5$

$(3p-5)(p+1)$

2) $2n^2 + 3n - 9$

$(2n-3)(n+3)$

3) $3n^2 - 8n + 4$

$(3n-2)(n-2)$

4) $5n^2 + 19n + 12$

$(5n+4)(n+3)$

5) $2v^2 + 11v + 5$

$(2v+1)(v+5)$

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

$(2n+1)(n+2)$