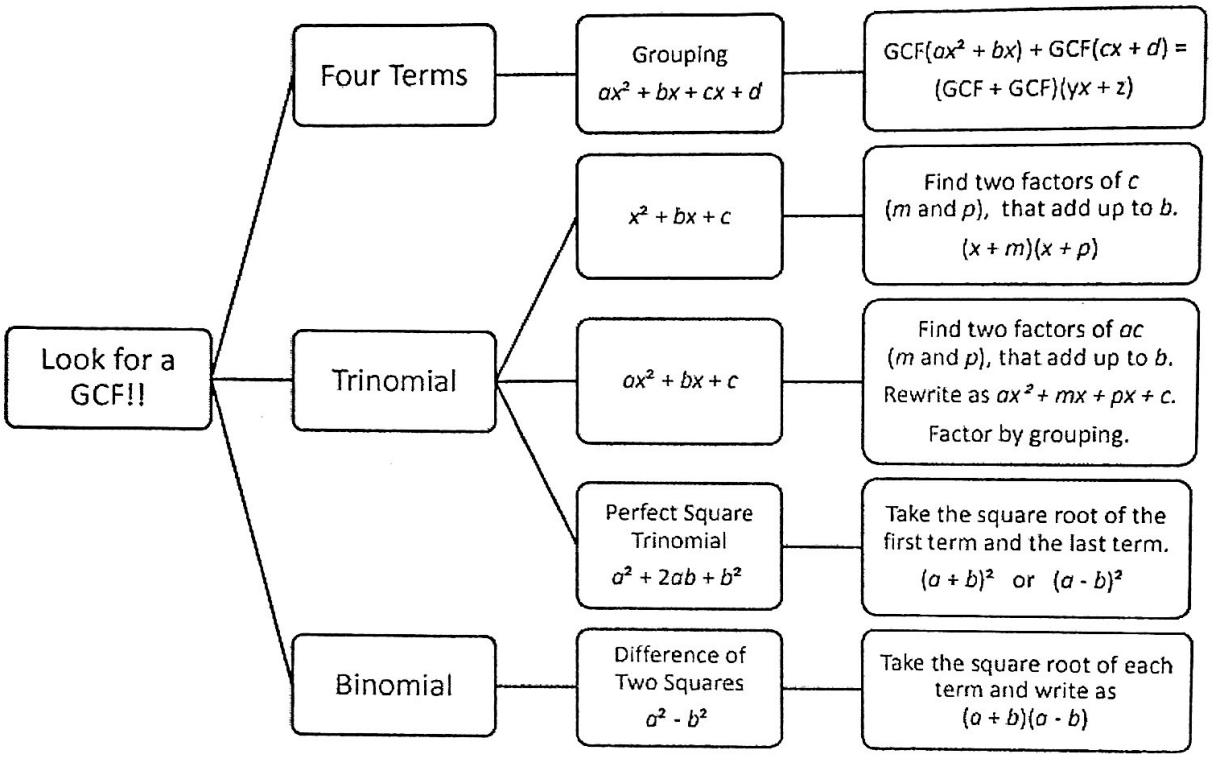
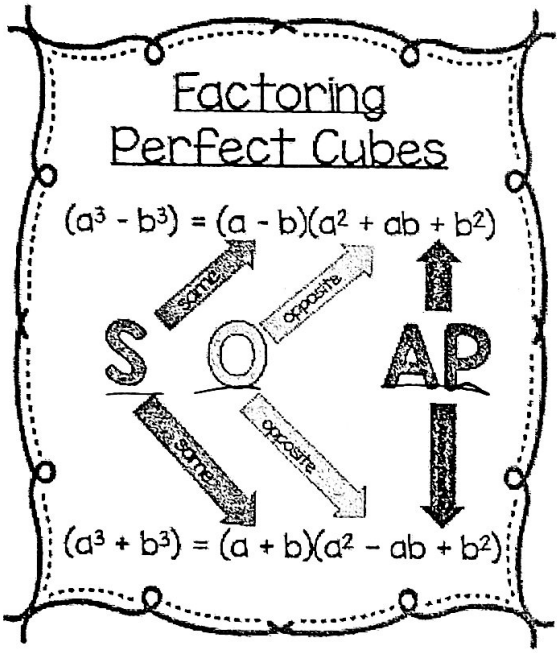
Precalculus Unit 2 Notes—Factoring and Review





SLIDE and DIVIDE

1) slide
2) factor
3) divide
4) bottoms up!!!

Factor completely:

SOAP

1) $x^6 - 16x^2$

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

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

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

2) $-7y^4 - 56y$

$-7y(y^3 + 8)$

$-7y(y+2)(y^2-2y+4)$

3) $3x^2 + 7x + 2$

$x^2 + 7x + 6$

$(x+\frac{6}{3})(x+\frac{1}{3})$

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

4) $3x^3 + 15x^2 - 12x - 60$

$3[x^3 + 5x^2 - 4x - 20]$

$3[x^2(x+5) - 4(x+5)]$

$3(x^2-4)(x+5)$

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

5) $8x^3 - 27$

$(2x-3)(4x^2+6x+9)$

1 1

6) $8x^2y - 20xy - 12y$

$4y(2x^2 - 5x - 3)$

$4y(2x+1)(x-3)$

7) $6x^2 + 11x - 10$

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

8) $-36x^3y + 15x^2y + 6xy$

$-3xy(12x^2 - 5x - 2)$

$-3xy(4x+1)(3x-2)$

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

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

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

10) $60x^3 + 40x^2 - 135x - 90$

$5(12x^3 + 8x^2 - 27x - 18)$

$5(4x^2(3x+2) - 9(3x+2))$

$5(4x^2-9)(3x+2)$

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

11) $x^4 - 29x^2 + 100$

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

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

12) $54x^3 - 128$

$2(27x^3 - 64)$

$2(3x-4)(9x^2 + 12x + 16)$

Precalculus Unit 2 Homework—Factoring

Factor completely:

1. $5x-15 = 5(x-3)$
2. $yz^3-3yz^2+2yz = yz(z^2-3z+2) = yz(z-2)(z-1)$
3. $z^2-49 = (z+7)(z-7)$
4. $64-25y^2 = (8-5y)(8+5y)$
5. $y^2+8y+16 = (y+4)^2$
6. $4z^2-4z+1 = (2z-1)^2$
7. $y^3-8 = (y-2)(y^2+2y+4)$
8. $27y^3-8 = (3y-2)(9y^2+6y+4)$
9. $1-x^3 = (1-x)(1+x+x^2)$
10. $x^2+9x+14 = (x+7)(x+2)$
11. $z^2-5z-24 = (z-8)(z+3)$
12. $14u^2-33u-5 = (7u+1)(2u-5)$
13. $12x^2+11x-15 = (4x-3)(3x+5)$
14. $6x^2+11xy-10y^2 = (3x-2y)(2x+5y)$
15. $x^3-4x^2+5x-20 = x^2(x-4)+5(x-4) = (x^2+5)(x-4)$
16. $x^6-3x^4+x^2-3 = x^4(x^2-3)+1(x^2-3) = (x^4+1)(x^2-3)$
17. $2ac+6ad-bc-3bd = 2a(c+3d)-b(c+3d) = (2a-b)(c+3d)$
18. $x^3+x = x(x^2+1)$
19. $18y^3+48y^2+32y = 2y(9y^2+24y+16) = 2y(3y+4)^2$
20. $16y-y^3 = y(16-y^2) = y(4-y)(4+y)$
21. $5y+3y^2-2y^3 = -y(2y^2-3y-5) = -y(2y-5)(y+1)$
22. $12x^2+22x-20 = 2(6x^2+11x-10) = 2(3x-2)(2x+5)$
23. $2ac-2bd+4ad-bc = 2ac+4ad-bc-2bd = 2a(c+2d)-b(c+2d) = (2a-b)(c+2d)$
24. $x^3-3x^2-4x+12 = x^2(x-3)-4(x-3) = (x^2-4)(x-3) = (x+2)(x-2)(x-3)$