Factoring

GCF (TF1A)

1. $6b + 4$ $2(3b + 2)$
2. $18a - 3b$ $3(6a - b)$
3. $49x + 21y$ $7(7x + 3y)$
4. $7r^2 + 21r + 28$ $7(r^2 + 3r + 4)$
5. $5x^2 + 20x + 40$ $5(x^2 + 4x + 8)$
6. $9y^2 + 12y + 6$ $3(3y^2 + 4y + 2)$
7. $4b^2 + 10b + 12$ $2(2b^2 + 5b + 6)$
8. $3x^3 - 5x^2$ $x^2(3x - 5)$
9. $2x^3 + 5x^2$ $x^2(2x + 5)$
10. $8a^3 - 8a^2$ $8a^2(a - 1)$

x^2 +bx + c [Tf3-A]

1. $a^2 + 5a + 6$ $(a + 2)(a + 3)$
2. $y^2 - 8y + 12$ $(y - 2)(y - 6)$
3. $y^2 - 2y - 15$ $(y - 5)(y + 3)$
4. $x^2 + x - 12$ $(x - 3)(x + 4)$
5. $r^2 - 8r + 12$ $(r - 2)(r - 6)$

Factpr Complete

6. $10r^2 + 70r + 100$ $10(r + 2)(r + 5)$
7. $5y^2 - 10y - 175$ $5(y - 7)(y + 5)$
8. $3a^2 - 33a + 90$ $3(a - 5)(a - 6)$
9. $10a^2 + 10a - 120$ $10(a - 3)(a + 4)$
10. $r^4 + 1r^3 - 42r^2$ $r^2(r - 6)(r + 7)$

ax^2 +bx +c [TF4-A]

1. $3a^2 + 11a + 10$ $(3a + 5)(a + 2)$
2. $3x^2 - 4x - 4$ $(3x + 2)(x - 2)$
3. $6x^2 - 5x - 6$ $(3x + 2)(2x - 3)$
4. $6a^2 + 7ar + 2r^2$ $(2a + r)(3a + 2r)$
5. $20r^2 + 41rx + 20x^2$ $(5r + 4x)(4r + 5x)$
7. $12b^2 + 11bx - 15x^2$ $(3b + 5x)(4b - 3x$
8. $-25x^2 + 30x - 9$ $(-5x + 3)(5x - 3)$

Factor Completely /GCF

9. $6y^2 + 32y + 42$ $2(3y + 7)(y + 3)$
10. $6x^3 - 5x^2 - 25x$ $x \cdot (3x + 5)(2x - 5)$

6. $18a^2 + 9a - 5$ $(6a + 5)(3a - 1)$	

Factor by Grouping (TF2-A)

1. $xy + 7x + 10y + 70$ $(x + 10)(y + 7)$ 2. $ab + 3a + 1b + 3$ $(a + 1)(b + 3)$ 3. $ab + 6a - 5b - 30$ $(a - 5)(b + 6)$ 4. $ab + 3a - 7b - 21$ $(a - 7)(b + 3)$ 5. $xy - 10x + 10y - 100$ $(x + 10)(y - 10)$	6. $ab - a + 8b - 8$ $(a + 8)(b - 1)$ 7. $2xy + 10x - 1y - 5$ $(2x - 1)(y + 5)$ 8. $2xy + 14x - 9y - 63$ $(2x - 9)(y + 7)$ 9. $2xy - 14x - 9y + 63$ $(2x - 9)(y - 7)$ 10. $2ab - 4a - 7b + 14$ $(2a - 7)(b - 2)$

Factoring by recognizing Special Products [TE5-A]

Factor the perfect square trinomials. 1. $y^2 - 4y + 4 =$ $(y - 2)^2$	Factor the following as the difference of two squares. Be Sure to factor completely. 6. $x^2 - 36 =$ $(x + 6)(x - 6)$
2. $y^2 - 6y + 9 =$ $(y - 3)^2$	$16a^2 - 25b^2 =$ $(4a + 5b)(4a - 5b)$
3. $25x^4 + 20x^2 + 4 =$ $(5x^2 + 2)^2$	$160 - 10t^2 =$ $10(4 + t)(4 - t)$
5. $48y^2 + 24y + 3 =$ $3(4y + 1)^2$	9. $a^4 - 16 =$ $(a^2 + 4)(a + 2)(a - 2)$

Perfect Square trinomials [TF5-A]

1. $a^2 + 8a + 16$ $(a + 4)^2$ 2. $y^2 + 14y + 49$ $(y + 7)^2$ 3. $4x^2 - 4x + 1$ $(2x - 1)^2$	5. $4r^2 + 4ry + y^2$ $(2r + y)^2$ Factor GCF then do the Perfect Square Trinomial 6. $3y^2 - 12y + 12$ $3(y - 2)^2$

4. $9a^2 - 24a + 16$ $(3a-4)^2$	7. $2y^2 - 20y + 50$ $2(y-5)^2$

Difference of Two Squares {TF5-A}

1. $y^2 - 4$ $(y-2)(y+2)$	6. $18r^2 - 8$ $2(3r-2)(3r+2)$
2. $y^2 - 81$ $(y-9)(y+9)$	7. $36y^3 - 100y$ $4y \cdot (3y-5)(3y+5)$
3. $3y^2 - 12$ $3(y-2)(y+2)$	8. $x^2 - r^2$ $(x-r)(x+r)$
4. $9r^2 - 4$ $(3r-2)(3r+2)$	9. $256r^4 - 16$ $(4r-2)(4r+2)(16r^2+4)$
5. $16a^2 - 9m^2$ $(4a-3m)(4a+3m)$	10. $y^2 - 4y + 4$ $(y-2)^2$

Sum of Two cubes [TF6-A]	Difference of Two Cubes [TF6-A
1 $r^3 + x^3 =$ $(r+x)(r^2 - rx + x^2)$ 2 $r^3 + 8 =$ $(r+2)(r^2 - 2r + 4)$	1 $r^3 - b^3 =$ $(r-b)(r^2 + rb + b^2)$ 2 $y^3 - 64 =$ $(y-4)(y^2 + 4y + 16)$

Solving Quadratic Equations By Factoring [TF8-A]

1 $(r+3)(r+5) = 0,\ r =$ $-3, -5$ 2 $r(r-6)(r+4) = 0,\ r =$ $0, 6, -4$	3 $(3x-2)(7x-6) = 0,\ x =$ $\frac{2}{3}, \frac{6}{7}$ 4 $r(4r+7)(7r+6) = 0,\ r =$ $0, -\frac{7}{4}, -\frac{6}{7}$ 5 $2y(4y+3)(2y-1) = 0,\ y =$ $0, -\frac{3}{4}, \frac{1}{2}$

Factoring Completely
