Foil:

① $(x+3)(x+6)$

② $(x+9)(x+2)$

③ $(x+7)(x+3)$

④ $(x+4)(x+6)$

⑤ $(x+5)(x+8)$

⑥ $(x+7)(x-9)$

⑦ $(x+10)(x-8)$

⑧ $(x-5)(x+2)$

⑨ $(x-9)(x-3)$

⑩ $(x-8)(x-2)$

Name:_____

Multiply:

1. $(x + 3)(x + 5)$
2. $(x + 7)(x + 8)$
3. $(x + 2)(x + 11)$
4. $(x - 3)(x - 7)$
5. $(x - 8)(x - 9)$
6. $(x + 6)(x - 8)$
7. $(x - 4)(x + 7)$
8. $(x - 3)(x + 4)$
9. $(x - 7)(x + 7)$
10. $(x + 12)(x - 4)$
11. $(3x + 1)(x - 2)$
12. $(x - 3)(2x + 1)$
13. $(2x - 1)(2x + 1)$
14. $(3x - 5)(4x + 9)$
15. $(6x + 3)(2x - 1)$
16. $(7x + 3)(4x + 5)$
17. $(6x - 5)(3x - 1)$
18. $(2x + 1)^2$
19. $(3x - 2)^2$
20. $(5x - 1)(3x + 2)$

Foil:

① $(2x+1)(3x+2)$

② $(4x+3)(4x-3)$

③ $(3x+5)(4x+1)$

④ $(2x-7)(2x-5)$

⑤ $(x+3)(2x-1)$

⑥ $(2x-5)^2$

⑦ $(4x-3)(5x+2)$

⑧ $(3x+4)^2$

⑨ $(2x-3)(2x+3)$

⑩ $(6x-5)(6x+5)$

⑪ $(6x+1)(2x-7)$

⑫ $(7x-3)^2$

Multiply:

① $(x+3)(x+4)$

② $(x+7)(x+6)$

③ $(b-2)(b-4)$

④ $(x-5)(x-7)$

⑤ $(x-3)(x+9)$

⑥ $(x-8)^2$

⑦ $(2x+3)(4x+7)$

⑧ $(6x-1)(x+3)$

⑨ $(4x-5)(5x+4)$

⑩ $(2x-5)^2$

Factor:

① $x^2+11x+28$

② $r^2+9r+20$

③ $y^2+25y+24$

④ $s^2-12s+20$

⑤ x^2-6x+5

⑥ $c^2-15c+14$

⑦ $u^2+11u+18$

⑧ p^2-5p+6

⑨ $n^2-17n+30$

⑩ $x^2-14x+24$

⑪ $x^2+20x+36$

⑫ $x^2-22x+72$

Factor:

① x^2+3x-4

② $x^2-4x-12$

③ c^2-c-6

④ p^2+p-12

⑤ $y^2-5y-14$

⑥ r^2-2r-8

⑦ $p^2+7p-18$

⑧ $b^2-13b-30$

⑨ $a^2+5a-24$

⑩ $x^2-10x-40$

⑪ $y^2-4y-32$

⑫ $x^2-25x-54$

Factor: (if not factorable, write "prime")

① $a^2+18a+81$

② $a^2-13a+42$

③ $u^2-10u+25$

④ $n^2-3n-28$

⑤ x^2-x-2

⑥ $c^2+3c-40$

⑦ $y^2-15y+44$

⑧ $x^2+3x-28$

⑨ $c^2-11c-26$

⑩ k^2-k-42

⑪ $a^2+13a-68$

⑫ $x^2+15x+26$

⑬ $x^2+22x-40$

⑭ $x^2-3x-54$

Factor: (watch signs!)

x^2+5x-6

x^2-5x+6

$x^2-10x-24$

$x^2+10x+24$

$x^2+13x-30$

$x^2-13x+30$

$x^2-15x+54$

$x^2+15x-54$

Factor:

1. $x^2 - 6x + 8$
2. $x^2 - 7x + 6$
3. $x^2 + 9x + 20$
4. $x^2 + 11x + 24$
5. $x^2 - 13x + 42$
6. $x^2 - 15x + 54$
7. $x^2 + 2x - 15$
8. $x^2 + 5x - 14$
9. $x^2 - 4x - 45$
10. $x^2 + 6x - 7$
11. $x^2 - x - 56$
12. $x^2 + 3x - 18$

Multiply:

① $6(2x-7)=$

② $5x(3x-2)=$

③ $-2(x^2-3x+6)=$

④ $3x(2x^2-x+6)$

⑤ $4x(3x^2-2x+1)$

⑥ $x(5x^2-7x+6)$

Factor out the GCF:

⑦ $3x-6$

⑧ $5x^2-15x+25$

⑨ $6x^2+4x-8$

⑩ $7x^2-6x$

⑪ $9x^3-6x^2+3x$

⑫ $10x^3-15x^2-60x$

⑬ $6x^4-7x^3-2x^2$

⑭ $9x^2+6x+15$

⑮ $16x^2-64x+8$

⑯ $30x^3+24x^2+12x$

Factor, if possible. (if not, write "Prime")

① $x^2 - 9$

② $a^2 - 64$

③ $4x^2 - 9$

④ $9z^2 - 1$

⑤ $x^2 + 16$

⑥ $a^2 - 4b^2$

⑦ $x^2 - 80$

⑧ $25a^2 - 49b^2$

Factor Completely: (look for GCF first!)

⑨ $3a^2 - 48$

⑩ $75r^2 - 48$

⑪ $4x^2 - 36$

⑫ $x^3 - 4x$

⑬ $20x^2 - 5$

⑭ $9x^2 - 81y^2$

Factor Completely: (look for GCF's!)

① $3x^2 - 3x - 36$

② $8x^2 - 8x - 16$

③ $6x^3 - 18x^2 + 12x$

④ $7x^2 - 28x + 28$

⑤ $x^2 + 16$

⑥ $4x^2 + 8x - 32$

⑦ $2x^2 - 50$

⑧ $x^3 - 7x^2 + 6x$

⑨ $5x^3 - 45x$

⑩ $2x^2 + 2x - 60$

⑪ $2x^2 + 10x + 8$

⑫ $x^2 - 13x + 40$

Factor Completely:

① x^2-5x+6

② x^3+12x^2+27x

③ x^2-49

④ $3x^2-6x$

⑤ $3b^2+60b+108$

⑥ x^2+100

⑦ $n^2-3n+40$

⑧ $2y^2+26y+60$

⑨ $5x^2-5x-60$

⑩ $4x^2+9$

⑪ x^3-13x^2-30x

⑫ $4x^2-36$

Factor Completely:

① $13x + 26y$

② $x^2 - 9x - 36$

③ $b^2 + 5b - 6$

④ $r^2 - 9r + 18$

⑤ $25x^2 - 100$

⑥ $2m^2 - 8m - 64$

⑦ $24a^2b - 18ab$

⑧ $y^3 + 13y^2 + 40y$

⑨ $x^2 + 9$

⑩ $3m^3 - 3m^2 - 36m$

Factor Completely: (Look for GCF's)

① $25a^2b^2 + 30ab^2$

② $27a^2b + 9b^3$

③ $x^2 - 9x + 14$

④ $x^2 - 5x - 24$

⑤ $m^2 - 10m - 39$

⑥ $y^3 + 2y^2 - 35y$

⑦ $4x^2 + 36$

⑧ $9x^2 - 81y^2$

⑨ $8t^2 + 32t + 24$

⑩ $9x^2 + 18x - 27$

Factor Completely: (Look for GCF's)

① $14d^2 + 49d$

② $r^2 + 16r + 63$

③ $5x^2 - 45$

④ $12t^2 - 75$

⑤ $4x^2 - 4x - 8$

⑥ $4x^2 + 9$

⑦ $2n^2 - 16n + 14$

⑧ $c^3 + 2c^2 - 3c$

⑨ $5a^2 - 20b^2$

⑩ $16y^3 - 4y$

⑪ $2b^3 + 44b^2 + 42b$

⑫ $v^2 + 24v - 52$

Factor Completely:

① $2x^2-10x-28$

② $4x^2+x$

③ $x^2+17x+16$

④ $2x^2-8$

⑤ $x^2-13x-48$

⑥ x^3-29x^2+100x

⑦ $3x^2-2x$

⑧ $5x^2-50x+120$

⑨ $9x^2+16$

⑩ $100x^2-9y^2$

⑪ $3x^2-6x+3$

⑫ $2x^2-36x+160$

Factor Completely:

1. $10a^2 + 4a$
2. $x^2 + 2x - 15$
3. $r^2 + 3r - 40$
4. $8t^2 + 32t + 24$
5. $4x^2 - 36$
6. $x^2 + 16$
7. $9x^2 + 18x - 27$
8. $x^3 - 13x^2 - 30x$
9. $16y^2 - 8y$
10. $2x^3 - 10x^2 - 12x$
11. $x^2 - 4x$
12. $5x^2 - 20y^2$

Solve:

① $a(a-9)=0$

① Set $=0$
② factor
③ Set each factor $=0$
④ Solve

② $(y+3)(y-1)=0$

③ $(2x+3)(5x-2)=0$

④ $10x^2-20x=0$

⑤ $a^2+3a-4=0$

⑥ $y^2-y-42=0$

⑦ $x^2-8x-20=0$

⑧ $b^2+11b+24=0$

⑨ $r^2-13r-48=0$

Solve Each Equation:

① $x^2 - 9x + 14 = 0$

② $n^2 - 8n + 15 = 0$

③ $x^2 - 5x - 24 = 0$

④ $x^2 + 15x + 36 = 0$

⑤ $r^2 + 3r - 40 = 0$

⑥ $r^2 + 16r + 63 = 0$

⑦ $a^2 + 7a = -10$

⑧ $x^2 + 24x = 52$

Solve:

① $(4n-7)(3n+2)=0$

② $3d(5d-2)=0$

③ $9n^2-4=0$

④ $25a^2-1=0$

⑤ $n^2-9n=-18$

⑥ $z^2+2z=35$

⑦ $x^2=14x-33$

⑧ $x^2=49$

⑨ $100d-4d^3=0$

⑩ $3r^3=48r$

Solve Each Equation:

① $(x+3)(x-7)=0$

② $(x-2)(x+8)=0$

③ $x^2+16x+28=0$

④ $b^2+20b+36=0$

⑤ $y^2-4y-12=0$

⑥ $d^2-2d-8=0$

⑦ $a^2-3a-28=0$

⑧ $x^2-4x-45=0$

⑨ $m^2-19m+48=0$

⑩ $n^2-22n+72=0$

Solve Each Equation:

① $2b(7b-4)=0$

② $9x^2-25=0$

③ $5y^2=9y$

④ $h^2+16h=-15$

⑤ $x^2-x=20$

⑥ $k^2+24=10k$

⑦ $c^2-50=-23c$

⑧ $y^2-29y=-54$

⑨ $x^2=25$

⑩ $x^2-4x=0$