Calculus Expanding Practice #2

Expand and simplify fully

1. $(3x - 2)(x + 4)(x + 6)$
2. $(5x^2 + 4x + 3)(2x^2 - 3x - 6)$
3. $(5x + 3)(x + 6)(3x + 7)$
4. $(2x + 2y + 1)(3x + 6y + 2)$
5. $(6x + 11)(x + 2)(x + 5)$
6. $(x + 3y - 1)(3x - 3y + 1)$
7. $(2x^2 + 2x - 2)(4x^2 + x - 5)$
8. $(x + y + 2)(x + 5y + 3)$
9. $(x^2 + 4x - 4)(4x^2 - 2x + 1)$
10. $(3x - 2y - 3)(2x + 3y + 2)$

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

Answers: Calculus Expanding Practice #2

Answers can be in any order, but it is usual to go down in powers

1. $(3x - 2)(x + 4)(x + 6) = 3x^3 + 28x^2 + 52x - 48$
2. $(5x^2 + 4x + 3)(2x^2 - 3x - 6) = 10x^4 - 7x^3 - 36x^2 - 33x - 18$
3. $(5x + 3)(x + 6)(3x + 7) = 15x^3 + 134x^2 + 285x + 126$
4. $(2x + 2y + 1)(3x + 6y + 2) = 6x^2 + 7x + 12y^2 + 10y + 18xy + 2$
5. $(6x + 11)(x + 2)(x + 5) = 6x^3 + 53x^2 + 137x + 110$
6. $(x + 3y - 1)(3x - 3y + 1) = 3x^2 - 2x - 9y^2 + 6y + 6xy - 1$
7. $(2x^2 + 2x - 2)(4x^2 + x - 5) = 8x^4 + 10x^3 - 16x^2 - 12x + 10$
8. $(x + y + 2)(x + 5y + 3) = x^2 + 5x + 5y^2 + 13y + 6xy + 6$
9. $(x^2 + 4x - 4)(4x^2 - 2x + 1) = 4x^4 + 14x^3 - 23x^2 + 12x - 4$
10. $(3x - 2y - 3)(2x + 3y + 2) = 6x^2 - 6y^2 - 13y + 5xy - 6$

11. $(3x + 5)(x + 4)(x + 6) = 3x^3 + 35x^2 + 122x + 120$
12. $(4x^2 + x - 7)(x^2 + 8x + 2) = 4x^4 + 33x^3 + 9x^2 - 54x - 14$
13. $(x - y + 3)(2x + 8y + 5) = 2x^2 + 1x - 8y^2 + 19y + 6xy + 15$
14. $(5x - 6)(x - 4)(x + 2) = 5x^3 - 16x^2 - 28x + 48$
15. $(2x + 4y - 7)(x - 9y - 4) = 2x^2 - 15x - 36y^2 + 47y - 14xy + 28$
16. $(4x^2 + 3x + 4)(x^2 + 5x - 2) = 4x^4 + 23x^3 + 1x^2 + 14x - 8$
17. $(x + 2y - 6)(x - 9y - 4) = x^2 - 10x - 18y^2 + 46y - 7xy + 24$
18. $(3x^2 + 3x - 4)(2x^2 - 2x + 3) = 6x^4 - 5x^2 + 17x - 12$
19. $(5x + 1)(x - 2)(3x + 1) = 15x^3 - 22x^2 - 15x - 2$
20. $(2x^2 + 4x - 1)(x^2 - 2x - 3) = 2x^4 - 15x^2 - 10x + 3$