Partial Fractions

For the following, write the partial fraction decomposition of each rational expression.

1. $\dfrac{3x+2}{x^2-2x-24}$ = $\dfrac{3x+2}{(x-6)(x+4)}$

2. $\dfrac{3x-7}{x^2-2x-3}$ = $\dfrac{3x-7}{(x-3)(x+1)}$

3. $\dfrac{-7x+43}{3x^2+19x-14}$ = $\dfrac{-7x+43}{(3x-2)(x+7)}$

4. $\dfrac{2x^2+4}{x^3+5x^2+4x}$ → #4. = $\dfrac{2x^2+4}{x(x+1)(x+4)}$

5. $\dfrac{3x+9}{(x-4)(x+3)^2}$ Note: This should be $(x-3)^2$

6. $\dfrac{2-9x}{(x-3)(2x-1)^2}$

7. $\dfrac{5x^2+3x-20}{x^2(x+4)}$

8. $\dfrac{3x+1}{(x-1)(x^2+1)}$

9. $\dfrac{3x^2+2x}{(x+2)(x^2+4)}$

10. $\dfrac{18x^2-8x-14}{(3x+4)(2x^2-3x+2)}$ → NOTE: This does not factor it is Case III

11. $\dfrac{x^2+2x+3}{(x^2+4)^2}$

12. $\dfrac{-10x^4+x^3-19x^2+x-10}{x(x^2+1)^2}$