Pre Calculus Trig I-1

Simplify the following:

1. $\frac{m^2x^2-t^2y^2}{mx+ty} =$

2. $\frac{\frac{x+1}{y}}{1+x} =$

3. $\frac{x+\frac{x}{y}}{\frac{y}{x}+\frac{1}{x}} =$

4. $\frac{x-y}{\frac{1}{y}-\frac{1}{x}} =$

5. $1+\frac{x}{\frac{y^2}{x}} =$

6. $\frac{1}{x+y}-\frac{1}{x-y} =$

7. $\frac{x}{y+1}+\frac{y}{x} =$

8. $\frac{\frac{x}{y}-\frac{y}{x}}{\frac{1}{y}-\frac{1}{x}} =$

9. $\frac{x}{y-z}+\frac{x}{y+z} =$

10. $\frac{x}{1-y}-\frac{1-y}{x} =$

11. $\frac{x^3-y^3}{x-y} =$

12. $\frac{x^3+y^3}{x^2y+xy^2} =$

Simplify:

13. $sin^2\theta + cos^2\theta =$

14. $1 + tan^2\alpha =$

15. $cos^2x - 1 =$

16. $cot^2\theta - csc^2\theta =$

17. $1 - sin^2\theta =$

18. $cot^2x + 1 =$

19. $sec^2\theta - tan^2\theta =$

20. $csc^2\theta - 1 =$

21. $1 - sec^2x =$