

## Quiz 20

I    Given:     $f(x) = \frac{2x}{1-x}$  and  $g(x) = \frac{1-x}{2x}$   
         Find:     $f(g(x))$

II    Solve:     $\frac{3x}{x-2} - \frac{6}{x+2} = \frac{24}{x^2-4}$

III    Simplify:    a)     $\frac{x^{-1} - y^{-1}}{x-y}$       b)     $\frac{4-\sqrt{2}}{5-\sqrt{2}}$

IV    Jack is hired to do some repair work. He worked 12 days on the job when Jill joined him and together they finished the job in 8 more days. Jill could have done the job alone in 24 days. How many days did the company save by hiring Jill to help?  
(hint: Let J = number of days for Jack)

Bonus    Clear parentheses:     $(x-1)^3 - (x+1)^3$