Quiz 4

Name: _____

Solutions given without showing work will earn a zero. This quiz is closed-book. Circle your answers.

Problem 1. [**6 points**] Completely simplify the complex fraction

$$\frac{x^2-1}{x^2-1}\cdot\frac{4-\dfrac{1}{x^2-1}}{4+\dfrac{4}{x+1}+\dfrac{1}{x^2-1}}$$

$x^2-1=(x+1)(x-1)$

$LCD=(x+1)(x-1)=x^2-1$

$$=\frac{4(x^2-1)-\dfrac{1}{x^2-1}\cdot\dfrac{x^2-1}{1}}{4(x^2-1)+\dfrac{4}{x+1}\cdot\dfrac{(x+1)(x-1)}{1}+\dfrac{1}{x^2-1}\cdot\dfrac{x^2-1}{1}}$$

$$=\frac{4(x^2-1)-1}{4(x^2-1)+4(x-1)+1}=\frac{4x^2-4-1}{4x^2-4+4x-4+1}=\boxed{\frac{4x^2-5}{4x^2+4x-7}}$$

Problem 2. [**4 points**] Divide and simplify

$$\frac{50x^2y^2+35x^3y^3-40x^4}{5x^2y^3}$$

$$\frac{\cancel{50}^{10}\cancel{x^2}\cancel{y^3}}{\cancel{5}\cancel{x^2}\cancel{y^3}}+\frac{\cancel{35}^{7}\cancel{x^3}\cancel{y^3}}{\cancel{5}\cancel{x^2}\cancel{y^3}}-\frac{\cancel{40}^{8}\cancel{x^4}^{x^2}}{\cancel{5}\cancel{x^2}y^3}$$

$$=\boxed{\frac{10}{y}+7x-\frac{8x^2}{y^3}}$$