

Math 95

Quiz 5

6.2 - Rational Expressions-Addition/Subtraction

Perform the indicated operations. Simplify when possible.

$$1) \frac{4y+2}{y-2} + \frac{y-3}{y-2} = \frac{4y+2+y-3}{y-2} = \boxed{\frac{5y-1}{y-2}}$$

$$2) \frac{3a-2}{a^2-25} - \frac{4a-7}{a^2-25} = \frac{(3a-2)-(4a-7)}{a^2-25}$$
$$= \frac{3a-2-4a+7}{a^2-25} = \frac{-a+5}{a^2-25}$$
$$= \frac{-(a+5)}{(a+5)(a+5)}$$
$$= \boxed{\frac{-1}{a+5}}$$

$$\begin{aligned}
 3) \frac{x-7}{x^2-16} - \frac{x-1}{16-x^2} &= \frac{x-7}{x^2-16} - \frac{(-1)(x-1)}{(-1)(16-x^2)} \\
 &= \frac{x-7}{x^2-16} + \frac{x-1}{x^2-16} \\
 &= \frac{x-7+x-1}{x^2-16} \\
 &= \frac{2x-8}{x^2-16} = \frac{2(x-4)}{(x+4)(x-4)} = \frac{2}{x+4}
 \end{aligned}$$

$$\begin{aligned}
 4) \frac{x}{x^2+9x+20} - \frac{4}{x^2+7x+12} \\
 &= \frac{x}{(x+5)(x+4)} - \frac{4}{(x+4)(x+3)} \\
 &= \frac{x(x+3)}{(x+5)(x+4)(x+3)} - \frac{4(x+5)}{(x+5)(x+4)(x+3)} \\
 &= \frac{x^2+3x}{(x+5)(x+4)(x+3)} - \frac{4x+20}{(x+5)(x+4)(x+3)} = \frac{x^2+3x-4x-20}{(x+5)(x+4)(x+3)} \\
 &= \frac{x^2-x-20}{(x+5)(x+4)(x+3)} = \frac{(x-5)(x+4)}{(x+5)(x+4)(x+3)} = \frac{x-5}{(x+5)(x+3)}
 \end{aligned}$$

LCM = (x+5)(x+4)(x+3)