

## Alg 2. Homework 17

$$(1) \frac{4x - 20}{4x + 20} \cdot \frac{3x^2 + 30x}{3x^2 - 15x}$$

$$= \frac{\cancel{4}(x-5)}{\cancel{4}(x+5)} \cdot \frac{\cancel{3x}(x+10)}{\cancel{3x}(x-5)} = \boxed{\frac{x+10}{x+5}}$$

$$(2) \frac{6a^2 + 2a}{9a^2 + 6a + 1} \cdot \frac{9a^2 - 1}{6a^2}$$

$$= \frac{2a(3a+1)}{(3a+1)(3a+1)} \cdot \frac{(3a+1)(3a-1)}{\cancel{6a^2}^{\cancel{3a}}}$$
$$= \boxed{\frac{3a-1}{3a}}$$

$$(3) \frac{2y^2 + 11y + 5}{4y^2 + 4y + 1} \div \frac{2y^3 + 10y^2}{4y^3}$$

$$= \frac{(2y+1)(y+5)}{(2y+1)(2y+1)} \cdot \frac{\cancel{2y^3}^{\cancel{2y^2}}}{\cancel{2y^2}(y+5)}$$
$$= \boxed{\frac{2y}{2y+1}}$$

$$(4) \frac{2k^2}{k^2 + 3k} - \frac{k^2 + 9}{k^2 + 3k}$$

$$= \frac{2k^2 - k^2 - 9}{k^2 + 3k}$$

$$= \frac{k^2 - 9}{k^2 + 3k}$$

$$= \frac{(k+3)(k-3)}{k(k+3)} = \boxed{\frac{k-3}{k}}$$

$$(5) \frac{x^2+1}{x^2-16} + \frac{5x+3}{x^2-16}$$

$$= \frac{x^2+1+5x+3}{x^2-16}$$

$$= \frac{x^2+5x+4}{x^2-16}$$

$$= \frac{(x+4)(x+1)}{(x+4)(x-4)}$$

$$= \boxed{\frac{x+1}{x+4}}$$