Warm Up

1. $\frac{5x}{x-4} + \frac{x+3}{x}$ CD: $x(x-4)$

$$\frac{5x(x) + (x+3)(x-4)}{x(x-4)}$$

$$\frac{5x^2 + x^2 - x - 12}{x(x-4)}$$

$$\boxed{\frac{6x^2 - x - 12}{x(x-4)}}$$

2. $\frac{8}{x+4} - \frac{x+1}{(x+4)(x-4)}$

$$\frac{8(x-4) - (x+1)}{(x+4)(x-4)}$$

$$\frac{8x - 32 - x - 1}{(x+4)(x-4)}$$

$$\boxed{\frac{7x-33}{(x+4)(x-4)}}$$

3. $\frac{(2x-3)(x+4)}{(2x-3)(x+1)} \cdot \frac{4\,8x}{2(x+4)} = \boxed{\frac{4x}{x+1}}$

4. $\frac{(3x+2)(2x+1)}{(3x-2)(3x+2)} \cdot \frac{3x-2}{5x^2(2x+1)} = \frac{1}{5x^2}$

5. $\frac{(3a+10)(a+2b)}{(a-2b)(a+2b)} \cdot \frac{(a-2b)(a+1b)}{3(3a+10)} = \boxed{\frac{a+1b}{3}}$

OR $\boxed{\frac{a+b}{3}}$

6. CD: $12(d+7)$

$$\frac{(d-1)(d+7)}{12(d+7)} + \frac{7(12)}{12(d+7)} - \frac{(d+1)(d+7)}{12(d+7)} = \frac{d(d+7)}{12(d+7)}$$

$$d^2 + 6d - 7 + 84 - d^2 - 8d - 7 = d^2 + 7d$$

$$-2d + 70 = d^2 + 7d$$

$$0 = d^2 + 9d - 70$$

$$0 = (d+14)(d-5)$$

$$\boxed{d = -14, d = 5}$$