21. $\dfrac{3c-7}{2c-1} + \dfrac{2c+1}{1-2c}$ (-1) (-1)

* by -1 to match denominators

$$\frac{3c-7}{2c-1} + \frac{-2c-1}{-1+2c}$$

$$\frac{3c-7-2c+1}{2c-1}$$

$$\frac{c-6}{2c-1}$$

26. $\dfrac{3a+1}{a-1} - \dfrac{a+4}{a-1}$

Denominators are already alike

$$\frac{3a+1-a-4}{a-1}$$

$$\frac{2a-3}{a-1}$$

36. $\dfrac{6g}{(g+5)} - \dfrac{(g-2)}{2g}$

$(2g)$ $(2g)(g+5)$

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

FOIL

$$\frac{12g^2 - (g^2+3g-10)}{2g(g+5)}$$

$$\frac{12g^2 - g^2 - 3g + 10}{2g(g+5)}$$

$$\frac{11g^2 - 3g + 10}{2g(g+5)}$$

39. $\frac{-2}{7r} + \frac{4}{t}$ (t) $(7r)$

$$\frac{-2t + 28r}{7rt}$$

45. $\dfrac{w-3}{w^2-w-20}+\dfrac{w}{w+4}$

FACTOR denominators

$\dfrac{w-3}{(w-5)(w+4)} + \dfrac{w\ (w-5)}{(w+4)(w-5)}$

$\dfrac{w-3+w^2-5w}{(w+4)(w-5)}$

$\dfrac{w^2-4w-3}{(w+4)(w-5)}$

57. $\dfrac{2}{x-1} + \dfrac{3}{x+1} - \dfrac{4x-2}{x^2-1}$

factor denominator

$\dfrac{(x+1)2}{(x+1)(x-1)} + \dfrac{(3)(x-1)}{(x+1)(x-1)} - \dfrac{4x-2}{(x-1)(x+1)}$

distribute & gather like terms

$\dfrac{2x+2+3x-3-4x+2}{(x-1)(x+1)}$

$\dfrac{(x+1)}{(x-1)(x+1)}$

cancel like factors

$\dfrac{1}{x-1}$

63. $\dfrac{5x}{3x^2+19x-14} - \dfrac{1}{9x^2-12x+4}$

factor both denominator * See next page for factoring

$$\frac{5x}{(x+7)(3x-2)}\cdot\frac{(3x-2)}{(3x-2)} - \frac{1}{(3x-2)(3x-2)}\cdot\frac{(x+7)}{(x+7)}$$

$$\frac{15x^2-10x-1x-7}{(3x-2)(3x-2)(x+7)}$$

$$\frac{15x^2-11x-7}{(3x-2)^2(x+7)}$$

$3x^2 + 19x - 14$

product	sum
-42	19
$21(-2)$	$21+(-2)$

$(3x^2 + 21x)(-2x - 14)$

Group & factor out GCF

$3x(x+7) - 2(x+7)$

$\boxed{(3x-2)(x+7)}$

$9x^2 - 12x + 4$

36	-12
$-6 \cdot -6$	$-6+-6$

$(9x^2 - 6x)(-6x + 4)$

$3x(3x-2) - 2(3x-2)$

$(3x-2)(3x-2)$

24. $\frac{5x+2}{2x+5} - \frac{x-8}{2x+5}$