

**Starter:**

1) $\frac{2}{3} + \frac{5}{6} =$

2) $\frac{7}{9} - \frac{2}{3} =$

3) $\frac{4}{5} - \frac{1}{3} =$

4) $\frac{5}{6} + \frac{3}{4} =$

Top Tips!

Remember the denominators need to be the same if you want to add or subtract fractions.

Quick short cut:

$$\text{Step 1: } \frac{2}{x+3} + \frac{3}{2x-1} = \frac{2(2x-1) + 3(x+3)}{(x+3)(2x-1)}$$

The 2 denominators stuck together in brackets

Step 2: Expand any brackets in the numerator

$$= \frac{4x-2+3x+9}{(x+3)(2x-1)}$$

Never expand the brackets in the denominator!

Step 3: Simplify the numerator (if possible) by collecting like terms

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

Skills:

Express the following as a single fraction in its simplest form.

1) $\frac{5}{3x-1} + \frac{2}{4x+3}$

2) $\frac{2}{x} - \frac{3}{7x-1}$

3) $\frac{x}{3x-1} - \frac{2}{4x+5}$

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

Examination Question:**2014 November Linear P1 Higher Q14**

Express the following as a single fraction in its simplest form. (5)

$$\frac{4x+3}{2x-1} - \frac{6x-5}{3x+1}$$

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Starter:

$$1) \frac{2}{3} + \frac{5}{6} = \frac{4}{6} + \frac{5}{6} = \frac{9}{6} = \frac{3}{2}$$

$$2) \frac{7}{9} - \frac{2}{3} = \frac{7}{9} - \frac{6}{9} = \frac{1}{9}$$

$$3) \frac{4}{5} - \frac{1}{3} = \frac{12}{15} - \frac{5}{15} = \frac{7}{15}$$

$$4) \frac{5}{6} + \frac{3}{4} = \frac{10}{12} + \frac{9}{12} = \frac{19}{12}$$

Top Tips!

Remember the denominators need to be the same if you want to add or subtract fractions.

Quick short cut:

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

Skills:

Express the following as a single fraction in its simplest form.

$$1) \frac{5}{3x-1} + \frac{2}{4x+3}$$

$$\frac{5(4x+3) + 2(3x-1)}{(3x-1)(4x+3)}$$

$$\frac{20x + 15 + 6x - 2}{(3x-1)(4x+3)}$$

$$\frac{26x + 13}{(3x-1)(4x+3)}$$

$$2) \frac{2}{x} - \frac{3}{7x-1}$$

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

$$\frac{14x - 2 - 3x}{x(7x-1)}$$

$$\frac{11x - 2}{x(7x-1)}$$

$$3) \frac{x}{3x-1} - \frac{2}{4x+5}$$

$$\frac{x(4x+5) - 2(3x-1)}{(3x-1)(4x+5)}$$

$$\frac{4x^2 + 5x - 6x + 2}{(3x-1)(4x+5)}$$

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

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

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

$$\frac{8x^2 + 4x + 2x + 1 + 9x - 3}{(3x-1)(4x+1)}$$

$$\frac{8x^2 + 15x - 2}{(3x-1)(4x+1)}$$

Examination Question:

2014 November Linear P1 Higher Q14

Express the following as a single fraction in its simplest form. (5)

$$\frac{4x+3}{2x-1} - \frac{6x-5}{3x+1}$$

$$\frac{(4x+3)(3x+1) - (6x-5)(2x-1)}{(2x-1)(3x+1)}$$

$$\frac{12x^2 + 9x + 4x + 3 - (12x^2 - 10x - 6x + 5)}{(2x-1)(3x+1)}$$

$$\frac{12x^2 + 13x + 3 - 12x^2 + 16x - 5}{(2x-1)(3x+1)}$$

$$\frac{29x - 2}{(2x-1)(3x+1)}$$

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