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| <b>a</b> Simplify<br>$\frac{4x^2}{9y} \div \frac{2x}{3y^2}$<br>$\frac{2xy}{3}$<br>dividing with two letters                     | <b>b</b> Simplify<br>$\frac{x^2-4}{3x} \times \frac{6x^2}{x+2}$<br>$2x(x-2)$<br>multiplying: factorise first              | <b>c</b> Write $\frac{4}{x^2} - \frac{1}{3x}$<br>as a single fraction<br>$\frac{12-x}{3x^2}$<br>subtracting: a power underneath          | <b>d</b> Write $2 + \frac{3}{x-1}$ as a single fraction<br>$\frac{2x+1}{x-1}$<br>adding a whole number                                                    |
| <b>e</b> Simplify<br>$\frac{6-2x}{x^2-9}$<br>$\frac{-2}{x+3}$<br>a bracket the wrong way round                                  | <b>f</b> Simplify<br>$\frac{4x^2-25}{2x^2+x-10}$<br>$\frac{2x-5}{x-2}$<br>non unit quadratics top and bottom              | <b>g</b> Write $\frac{2}{x-1} - \frac{1}{x+1} - \frac{4}{x^2-1}$ as a single fraction<br>$\frac{1}{x+1}$<br>three fractions, then cancel | <b>h</b> Simplify<br>$\frac{1+\frac{1}{x}}{1-\frac{1}{x^2}}$<br>$\frac{x}{x-1}$<br>a fraction within a fraction                                           |
| <b>i</b> $\frac{x^2+ax-6}{x^2-4}$<br>simplifies to $\frac{x+3}{x+2}$ .<br>Find $a$ .<br>$a = 1$<br>working back from the answer | <b>j</b> Solve<br>$\frac{2}{x} + \frac{3}{x+2} = 1$<br>$x = 4 \text{ or } x = -1$<br>an equation that becomes a quadratic | <b>k</b> Solve<br>$\frac{x^2}{x-3} = \frac{9}{x-3}$<br>$x = -3$<br>rejecting a root                                                      | <b>l</b> Solve<br>$\frac{1}{x} + \frac{1}{x+1} = 1$ . Give your answers in surd form.<br>$x = \frac{1 \pm \sqrt{5}}{2}$<br>an exact answer from fractions |

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| <b>e</b> Simplify<br>$\frac{6-2x}{x^2-9}$<br>$\frac{-2}{x+3}$<br>a bracket the wrong way round                                  | <b>f</b> Simplify<br>$\frac{4x^2-25}{2x^2+x-10}$<br>$\frac{2x-5}{x-2}$<br>non unit quadratics top and bottom              | <b>g</b> Write $\frac{2}{x-1} - \frac{1}{x+1} - \frac{4}{x^2-1}$ as a single fraction<br>$\frac{1}{x+1}$<br>three fractions, then cancel | <b>h</b> Simplify<br>$\frac{1+\frac{1}{x}}{1-\frac{1}{x^2}}$<br>$\frac{x}{x-1}$<br>a fraction within a fraction                                           |
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