1 Simplifying by removing common factors:

a $\dfrac{4}{2(x+1)}$ **b** $\dfrac{12}{4(2-x)}$ **c** $\dfrac{2x+4}{2}$ **d** $\dfrac{3x+6}{3}$

e $\dfrac{3x+6}{6}$ **f** $\dfrac{4x+20}{8}$ **g** $\dfrac{4y+12}{12}$ **h** $\dfrac{ax+bx}{x}$

i $\dfrac{ax+bx}{cx+dx}$ **j** $\dfrac{(a+2)^2}{2(a+2)}$ **k** $\dfrac{3(b-4)}{6(b-4)^2}$ **l** $\dfrac{8(p+q)^2}{12(p+q)}$

2 Simplify by factorising:

a $\dfrac{3x+6}{4x+8}$ **b** $\dfrac{ax+bx}{2x}$ **c** $\dfrac{ax+bx}{a+b}$ **d** $\dfrac{x}{ax+bx}$

e $\dfrac{a+b}{ay+by}$ **f** $\dfrac{ax+bx}{ay+by}$ **g** $\dfrac{4x^2+8x}{x+2}$ **h** $\dfrac{3x^2+9x}{x+3}$

3 Simplify, if possible:

a $\dfrac{2x-2y}{y-x}$ **b** $\dfrac{3x-3y}{2y-2x}$ **c** $\dfrac{m+n}{n-m}$ **d** $\dfrac{m-n}{n-m}$

e $\dfrac{r-2s}{4s-2r}$ **f** $\dfrac{3r-6s}{2s-r}$ **g** $\dfrac{2x-2}{x-x^2}$ **h** $\dfrac{ab^2-ab}{2-2b}$

i $\dfrac{4x^2-4x}{2-2x}$ **j** $\dfrac{4x+6}{2}$ **k** $\dfrac{4x+6}{3}$ **l** $\dfrac{4x+6}{4}$

m $\dfrac{4x+6}{5}$ **n** $\dfrac{4x+6}{6}$ **o** $\dfrac{6a+1}{2}$ **p** $\dfrac{6a+1}{3}$

q $\dfrac{6a+2}{4}$ **r** $\dfrac{3b+9}{2}$ **s** $\dfrac{3b+9}{6}$ **t** $\dfrac{4x-2}{2-x}$

4 Simplify:

a $\dfrac{x^2-1}{x-1}$ **b** $\dfrac{x^2-1}{x+1}$ **c** $\dfrac{x^2-1}{1-x}$ **d** $\dfrac{x+2}{x^2-4}$

e $\dfrac{a^2-b^2}{a+b}$ **f** $\dfrac{a^2-b^2}{b-a}$ **g** $\dfrac{2x+2}{x^2-1}$ **h** $\dfrac{9-x^2}{3x-x^2}$

i $\dfrac{3x^2-3y^2}{2xy-2y^2}$ **j** $\dfrac{2b^2-2a^2}{a^2-ab}$ **k** $\dfrac{4xy-y^2}{16x^2-y^2}$ **l** $\dfrac{4x(x-4)}{16-x^2}$

5 Simplify by factorising and cancelling common factors:

a $\dfrac{x^2 - x - 2}{x - 2}$

b $\dfrac{x + 3}{x^2 - 2x - 15}$

c $\dfrac{2x^2 + 2x}{x^2 - 4x - 5}$

d $\dfrac{x^2 - 4}{x^2 + 4x + 4}$

e $\dfrac{x^2 - x - 12}{x^2 - 5x + 4}$

f $\dfrac{x^2 + 2x + 1}{1 - x^2}$

g $\dfrac{x^2 - x - 20}{x^2 + 7x + 12}$

h $\dfrac{2x^2 + 5x + 2}{2x^2 + 7x + 3}$

i $\dfrac{3x^2 + 7x + 2}{6x^2 - x - 1}$

j $\dfrac{8x^2 + 2x - 1}{4x^2 - 5x + 1}$

k $\dfrac{12x^2 - 5x - 3}{6x^2 + 5x + 1}$

l $\dfrac{15x^2 + 17x - 4}{5x^2 + 9x - 2}$