

Name:

Class/Set:

Algebraic Fractions - Add/Subtract 2

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1: Simplify the following as far as possible:

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

b) $\frac{2}{3u-1} - \frac{1}{u}$

c) $\frac{1}{h} + \frac{5}{h-3}$

d) $\frac{2}{n+4} + \frac{5}{n}$

e) $\frac{4}{x} - \frac{5}{x-1}$

f) $\frac{2}{2r+3} - \frac{3}{r}$

2: Simplify the following as far as possible:

a) $\frac{2}{2f-1} + \frac{5}{2f+1}$

b) $\frac{5}{2t-3} + \frac{3}{t-2}$

c) $\frac{3}{q+2} + \frac{4}{q+3}$

d) $\frac{5}{e-4} - \frac{4}{3e+1}$

e) $\frac{3}{3y-2} - \frac{5}{3y+2}$

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

3: Simplify the following as far as possible:

$$\text{a) } \frac{k}{k-3} - \frac{2k}{2k-3}$$

$$\text{b) } \frac{b}{2b-1} - \frac{b}{2b+1}$$

$$\text{c) } \frac{w}{w-2} - \frac{w}{w+1}$$

$$\text{d) } \frac{z}{z-4} - \frac{2z}{2z+3}$$

$$\text{e) } \frac{j}{j+2} - \frac{3j}{3j+1}$$

$$\text{f) } \frac{p}{3p-1} - \frac{p}{3p-2}$$

4: Simplify the following as far as possible:

$$\text{a) } \frac{s+1}{s+2} - \frac{s-4}{s-3}$$

$$\text{b) } \frac{m-2}{m+1} - \frac{m-2}{m+5}$$

$$\text{c) } \frac{c-1}{c+2} - \frac{c-5}{c+5}$$

$$\text{d) } \frac{g-5}{g+3} - \frac{g+1}{g+4}$$

$$\text{e) } \frac{n-3}{n-2} - \frac{n-4}{n+5}$$

$$\text{f) } \frac{f-1}{f+4} - \frac{f-1}{f+1}$$

Answers: Algebraic Fractions - Add/Subtract 2

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1: a) $\frac{4v+4}{v(v+1)} - \frac{3v}{v(v+1)} = \frac{v+4}{v(v+1)}$
b) $\frac{2u}{u(3u-1)} - \frac{3u-1}{u(3u-1)} = \frac{-u+1}{u(3u-1)} = \frac{-(u-1)}{u(3u-1)}$
c) $\frac{h-3}{h(h-3)} + \frac{5h}{h(h-3)} = \frac{6h-3}{h(h-3)} = \frac{3(2h-1)}{h(h-3)}$
d) $\frac{2n}{n(n+4)} + \frac{5n+20}{n(n+4)} = \frac{7n+20}{n(n+4)}$
e) $\frac{4x-4}{x(x-1)} - \frac{5x}{x(x-1)} = \frac{-x-4}{x(x-1)} = \frac{-(x+4)}{x(x-1)}$
f) $\frac{2r}{r(2r+3)} - \frac{6r+9}{r(2r+3)} = \frac{-4r-9}{r(2r+3)} = \frac{-(4r+9)}{r(2r+3)}$

2: a) $\frac{4f+2}{(2f-1)(2f+1)} + \frac{10f-5}{(2f+1)(2f-1)} = \frac{14f-3}{(2f-1)(2f+1)}$
b) $\frac{5t-10}{(2t-3)(t-2)} + \frac{6t-9}{(t-2)(2t-3)} = \frac{11t-19}{(2t-3)(t-2)}$
c) $\frac{3q+9}{(q+2)(q+3)} + \frac{4q+8}{(q+3)(q+2)} = \frac{7q+17}{(q+2)(q+3)}$
d) $\frac{15e+5}{(e-4)(3e+1)} - \frac{4e-16}{(3e+1)(e-4)} = \frac{11e+21}{(e-4)(3e+1)}$
e) $\frac{9y+6}{(3y-2)(3y+2)} - \frac{15y-10}{(3y+2)(3y-2)} = \frac{-6y+16}{(3y-2)(3y+2)} = \frac{-2(3y-8)}{(3y-2)(3y+2)}$
f) $\frac{2a-2}{(a+4)(a-1)} + \frac{3a+12}{(a-1)(a+4)} = \frac{5a+10}{(a+4)(a-1)} = \frac{5(a+2)}{(a+4)(a-1)}$

3: a) $\frac{2k^2-3k}{(k-3)(2k-3)} - \frac{2k^2-6k}{(2k-3)(k-3)} = \frac{3k}{(k-3)(2k-3)}$
b) $\frac{2b^2+b}{(2b-1)(2b+1)} - \frac{2b^2-b}{(2b+1)(2b-1)} = \frac{2b}{(2b-1)(2b+1)}$
c) $\frac{w^2+w}{(w-2)(w+1)} - \frac{w^2-2w}{(w+1)(w-2)} = \frac{3w}{(w-2)(w+1)}$
d) $\frac{2z^2+3z}{(z-4)(2z+3)} - \frac{2z^2-8z}{(2z+3)(z-4)} = \frac{11z}{(z-4)(2z+3)}$
e) $\frac{3j^2+j}{(j+2)(3j+1)} - \frac{3j^2+6j}{(3j+1)(j+2)} = \frac{-5j}{(j+2)(3j+1)}$

$$f) \frac{3p^2 - 2p}{(3p - 1)(3p - 2)} - \frac{3p^2 - p}{(3p - 2)(3p - 1)} = \frac{-p}{(3p - 1)(3p - 2)}$$

$$4: a) \frac{s^2 - 2s - 3}{(s + 2)(s - 3)} - \frac{s^2 - 2s - 8}{(s - 3)(s + 2)} = \frac{5}{(s + 2)(s - 3)}$$

$$b) \frac{m^2 + 3m - 10}{(m + 1)(m + 5)} - \frac{m^2 - m - 2}{(m + 5)(m + 1)} = \frac{4m - 8}{(m + 1)(m + 5)} = \frac{4(m - 2)}{(m + 1)(m + 5)}$$

$$c) \frac{c^2 + 4c - 5}{(c + 2)(c + 5)} - \frac{c^2 - 3c - 10}{(c + 5)(c + 2)} = \frac{7c + 5}{(c + 2)(c + 5)}$$

$$d) \frac{g^2 - g - 20}{(g + 3)(g + 4)} - \frac{g^2 + 4g + 3}{(g + 4)(g + 3)} = \frac{-5g - 23}{(g + 3)(g + 4)} = \frac{-(5g + 23)}{(g + 3)(g + 4)}$$

$$e) \frac{n^2 + 2n - 15}{(n - 2)(n + 5)} - \frac{n^2 - 6n + 8}{(n + 5)(n - 2)} = \frac{8n - 23}{(n - 2)(n + 5)}$$

$$f) \frac{f^2 - 1}{(f + 4)(f + 1)} - \frac{f^2 + 3f - 4}{(f + 1)(f + 4)} = \frac{-3f + 3}{(f + 4)(f + 1)} = \frac{-3(f - 1)}{(f + 4)(f + 1)}$$