

Name:

Class/Set:

Algebraic Fractions - Multiply/Divide 2

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1: Simplify the following as far as possible:

a) $\frac{5}{v^2 + v - 2} \times \frac{v - 1}{2}$

b) $\frac{9}{u^2 - 4u + 3} \times \frac{u - 3}{2}$

2: Simplify the following as far as possible:

a) $\frac{7}{h - 2} \div \frac{8}{h^2 - h - 2}$

b) $\frac{3}{n - 4} \div \frac{8}{n^2 + n - 20}$

3: Simplify the following as far as possible:

a) $\frac{x^2 - 3x - 4}{5x} \times \frac{4}{x - 4}$

b) $\frac{4r}{r - 2} \times \frac{r^2 + 2r - 8}{7}$

4: Simplify the following as far as possible:

a) $\frac{7f}{f^2 + 2f - 3} \div \frac{6f}{f - 1}$

b) $\frac{5t}{t - 5} \div \frac{7}{t^2 - t - 20}$

5: Simplify the following as far as possible:

a) $\frac{q^2 + 4q + 4}{10} \times \frac{7}{q^2 + 7q + 10}$

b) $\frac{8}{e^2 + 3e - 10} \times \frac{e^2 + 6e + 5}{5}$

6: Simplify the following as far as possible:

a) $\frac{y^2 - 3y - 10}{4} \div \frac{y^2 - 8y + 15}{9}$

b) $\frac{a^2 - 16}{5} \div \frac{a^2 - 3a - 4}{6}$

7: Simplify the following as far as possible:

a) $\frac{k^2 - 4k + 3}{4k} \times \frac{3}{k^2 - 2k + 1}$

b) $\frac{b^2 + 3b - 4}{7b} \times \frac{3b}{b^2 + 7b + 12}$

8: Simplify the following as far as possible:

a) $\frac{w^2 - 2w - 3}{2w} \div \frac{w^2 - 7w + 12}{3}$

b) $\frac{z^2 + 4z + 3}{3z} \div \frac{z^2 + 3z + 2}{5z}$

9: Simplify the following as far as possible:

a) $\frac{j^2 - 2j + 1}{j^2 - 1} \times \frac{j^2 + 4j + 3}{j^2 + 2j - 3}$

b) $\frac{p^2 + 4p - 5}{p^2 + 6p + 5} \times \frac{p^2 - p - 2}{p^2 - p - 2}$

10: Simplify the following as far as possible:

a) $\frac{s^2 + 4s - 5}{s^2 + s - 2} \div \frac{s^2 + 10s + 25}{s^2 + 8s + 15}$

b) $\frac{m^2 + m - 2}{m^2 - 2m - 8} \div \frac{m^2 - 4m + 3}{m^2 - 6m + 9}$

Answers: Algebraic Fractions - Multiply/Divide 2

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1: a) $\frac{5}{(v-1)(v+2)} \times \frac{v-1}{2} = \frac{5(v-1)}{2(v-1)(v+2)} = \frac{5}{2(v+2)}$

b) $\frac{9}{(u-3)(u-1)} \times \frac{u-3}{2} = \frac{9(u-3)}{2(u-3)(u-1)} = \frac{9}{2(u-1)}$

2: a) $\frac{7}{h-2} \times \frac{(h-2)(h+1)}{8} = \frac{7(h-2)(h+1)}{8(h-2)} = \frac{7(h+1)}{8}$

b) $\frac{3}{n-4} \times \frac{(n-4)(n+5)}{8} = \frac{3(n-4)(n+5)}{8(n-4)} = \frac{3(n+5)}{8}$

3: a) $\frac{(x-4)(x+1)}{5x} \times \frac{4}{x-4} = \frac{4(x-4)(x+1)}{5x(x-4)} = \frac{4(x+1)}{5x}$

b) $\frac{4r}{r-2} \times \frac{(r-2)(r+4)}{7} = \frac{4r(r-2)(r+4)}{7(r-2)} = \frac{4r(r+4)}{7}$

4: a) $\frac{7f}{(f-1)(f+3)} \times \frac{f-1}{6f} = \frac{7f(f-1)}{6f(f-1)(f+3)} = \frac{7}{6(f+3)}$

b) $\frac{5t}{t-5} \times \frac{(t-5)(t+4)}{7} = \frac{5t(t-5)(t+4)}{7(t-5)} = \frac{5t(t+4)}{7}$

5: a) $\frac{(q+2)^2}{10} \times \frac{7}{(q+2)(q+5)} = \frac{7(q+2)^2}{10(q+2)(q+5)} = \frac{7(q+2)}{10(q+5)}$

b) $\frac{8}{(e-2)(e+5)} \times \frac{(e+1)(e+5)}{5} = \frac{8(e+1)(e+5)}{5(e-2)(e+5)} = \frac{8(e+1)}{5(e-2)}$

6: a) $\frac{(y-5)(y+2)}{4} \times \frac{9}{(y-5)(y-3)} = \frac{9(y-5)(y+2)}{4(y-5)(y-3)} = \frac{9(y+2)}{4(y-3)}$

b) $\frac{(a-4)(a+4)}{5} \times \frac{6}{(a-4)(a+1)} = \frac{6(a-4)(a+4)}{5(a-4)(a+1)} = \frac{6(a+4)}{5(a+1)}$

7: a) $\frac{(k-3)(k-1)}{4k} \times \frac{3}{(k-1)^2} = \frac{3(k-3)(k-1)}{4k(k-1)^2} = \frac{3(k-3)}{4k(k-1)}$

b) $\frac{(b-1)(b+4)}{7b} \times \frac{3b}{(b+3)(b+4)} = \frac{3b(b-1)(b+4)}{7b(b+3)(b+4)} = \frac{3(b-1)}{7(b+3)}$

$$8: \quad a) \frac{(w-3)(w+1)}{2w} \times \frac{3}{(w-4)(w-3)} = \frac{3(w-3)(w+1)}{2w(w-4)(w-3)} = \frac{3(w+1)}{2w(w-4)}$$

$$b) \frac{(z+1)(z+3)}{3z} \times \frac{5z}{(z+1)(z+2)} = \frac{5z(z+1)(z+3)}{3z(z+1)(z+2)} = \frac{5(z+3)}{3(z+2)}$$

$$9: \quad a) \frac{(j-1)^2}{(j-1)(j+1)} \times \frac{(j+1)(j+3)}{(j-1)(j+3)} = \frac{(j-1)^2(j+1)(j+3)}{(j-1)^2(j+1)(j+3)} = 1$$

$$b) \frac{(p-1)(p+5)}{(p+1)(p+5)} \times \frac{(p-2)(p+1)}{(p-2)(p+1)} = \frac{(p-1)(p+5)(p-2)(p+1)}{(p+1)^2(p+5)(p-2)} = \frac{p-1}{p+1}$$

$$10: \quad a) \frac{(s-1)(s+5)}{(s-1)(s+2)} \times \frac{(s+3)(s+5)}{(s+5)^2} = \frac{(s-1)(s+5)^2(s+3)}{(s-1)(s+2)(s+5)^2} = \frac{s+3}{s+2}$$

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