Name: **Class/Set:**

Algebraic Fractions - Multiply/Divide 1

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1: Simplify the following as far as possible:

a) $\frac{7}{8v} \times \frac{2}{5v}$

b) $\frac{3u}{5} \times \frac{7u}{9}$

c) $\frac{9}{10h} \times \frac{5h}{4}$

d) $\frac{7n}{4} \times \frac{3}{7n}$

e) $\frac{4x}{9} \times \frac{2x}{3}$

f) $\frac{7}{6r} \times \frac{10}{3r}$

2: Simplify the following as far as possible:

a) $\frac{7}{10f} \div \frac{5f}{8}$

b) $\frac{6t}{5} \div \frac{3}{4t}$

c) $\frac{5q}{7} \div \frac{9q}{8}$

d) $\frac{5}{9e} \div \frac{8}{3e}$

e) $\frac{9}{2y} \div \frac{2y}{7}$

f) $\frac{10a}{9} \div \frac{5}{4a}$

3: Simplify the following as far as possible:

a) $\frac{6k}{21k+7} \times \frac{9k+3}{7k}$

b) $\frac{3}{15b-10} \times \frac{12b-8}{7}$

c) $\frac{2w+6}{5w} \times \frac{7}{9w+27}$

d) $\frac{2z}{6z-3} \times \frac{8z-4}{9}$

e) $\frac{5}{7j-7} \times \frac{5j-5}{6j}$

f) $\frac{7p+14}{8p} \times \frac{2p}{7p+14}$

4: Simplify the following as far as possible:

a) $\frac{6s+9}{4} \div \frac{18s+27}{8}$

b) $\frac{5m}{18m-27} \div \frac{8}{6m-9}$

c) $\frac{5c+20}{8} \div \frac{9c+36}{2}$

d) $\frac{21g-7}{10g} \div \frac{30g-10}{3g}$

e) $\frac{6x+3}{7x} \div \frac{10x+5}{4}$

f) $\frac{4y}{9y-36} \div \frac{5}{2y-8}$

5: Simplify the following as far as possible:

a) $\frac{4}{21f + 14} \times \frac{9f^2 + 6f}{5}$

b) $\frac{2e + 2}{3e} \times \frac{5e}{7e^2 + 7e}$

c) $\frac{5}{6q^2 - 18q} \times \frac{2q - 6}{7q}$

d) $\frac{3v}{8v - 16} \times \frac{9v^2 - 18v}{10}$

e) $\frac{21w - 14}{8w} \times \frac{5}{24w^2 - 16w}$

f) $\frac{3u^2 - 3u}{4} \times \frac{6}{7u - 7}$

6: Simplify the following as far as possible:

a) $\frac{5z^2 + 20z}{9z} \div \frac{9z + 36}{7z}$

b) $\frac{3b}{10b + 20} \div \frac{9}{2b^2 + 4b}$

c) $\frac{8n}{27n^2 + 9n} \div \frac{10n}{21n + 7}$

d) $\frac{2}{10a^2 - 5a} \div \frac{9a}{8a - 4}$

e) $\frac{5}{6k^2 + 18k} \div \frac{5}{4k + 12}$

f) $\frac{4g - 16}{7} \div \frac{10g^2 - 40g}{9g}$

Answers: Algebraic Fractions - Multiply/Divide 1

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1: a) $\frac{7}{8v} \times \frac{2}{5v} = \frac{14}{40v^2} = \frac{7}{20v^2}$ b) $\frac{3u}{5} \times \frac{7u}{9} = \frac{21u^2}{45} = \frac{7u^2}{15}$ c) $\frac{9}{10h} \times \frac{5h}{4} = \frac{45h}{40h} = \frac{9}{8}$

d) $\frac{7n}{4} \times \frac{3}{7n} = \frac{21n}{28n} = \frac{3}{4}$ e) $\frac{4x}{9} \times \frac{2x}{3} = \frac{8x^2}{27}$ f) $\frac{7}{6r} \times \frac{10}{3r} = \frac{70}{18r^2} = \frac{35}{9r^2}$

2: a) $\frac{7}{10f} \times \frac{8}{5f} = \frac{56}{50f^2} = \frac{28}{25f^2}$ b) $\frac{6t}{5} \times \frac{4t}{3} = \frac{24t^2}{15} = \frac{8t^2}{5}$ c) $\frac{5q}{7} \times \frac{8}{9q} = \frac{40q}{63q} = \frac{40}{63}$

d) $\frac{5}{9e} \times \frac{3e}{8} = \frac{15e}{72e} = \frac{5}{24}$ e) $\frac{9}{2y} \times \frac{7}{2y} = \frac{63}{4y^2}$ f) $\frac{10a}{9} \times \frac{4a}{5} = \frac{40a^2}{45} = \frac{8a^2}{9}$

3: a) $\frac{6k}{7(3k+1)} \times \frac{3(3k+1)}{7k} = \frac{18k(3k+1)}{49k(3k+1)} = \frac{18}{49}$

b) $\frac{3}{5(3b-2)} \times \frac{4(3b-2)}{7} = \frac{12(3b-2)}{35(3b-2)} = \frac{12}{35}$

c) $\frac{2(w+3)}{5w} \times \frac{7}{9(w+3)} = \frac{14(w+3)}{45w(w+3)} = \frac{14}{45w}$

d) $\frac{2z}{3(2z-1)} \times \frac{4(2z-1)}{9} = \frac{8z(2z-1)}{27(2z-1)} = \frac{8z}{27}$

e) $\frac{5}{7(j-1)} \times \frac{5(j-1)}{6j} = \frac{25(j-1)}{42j(j-1)} = \frac{25}{42j}$

f) $\frac{7(p+2)}{8p} \times \frac{2p}{7(p+2)} = \frac{14p(p+2)}{56p(p+2)} = \frac{1}{4}$

4: a) $\frac{3(2s+3)}{4} \times \frac{8}{9(2s+3)} = \frac{24(2s+3)}{36(2s+3)} = \frac{2}{3}$

b) $\frac{5m}{9(2m-3)} \times \frac{3(2m-3)}{8} = \frac{15m(2m-3)}{72(2m-3)} = \frac{5m}{24}$

c) $\frac{5(c+4)}{8} \times \frac{2}{9(c+4)} = \frac{10(c+4)}{72(c+4)} = \frac{5}{36}$

d) $\frac{7(3g-1)}{10g} \times \frac{3g}{10(3g-1)} = \frac{21g(3g-1)}{100g(3g-1)} = \frac{21}{100}$

e) $\frac{3(2x+1)}{7x} \times \frac{4}{5(2x+1)} = \frac{12(2x+1)}{35x(2x+1)} = \frac{12}{35x}$

f) $\frac{4y}{9(y-4)} \times \frac{2(y-4)}{5} = \frac{8y(y-4)}{45(y-4)} = \frac{8y}{45}$

5: a) $\frac{4}{7(3f+2)} \times \frac{3f(3f+2)}{5} = \frac{12f(3f+2)}{35(3f+2)} = \frac{12f}{35}$

b) $\frac{2(e+1)}{3e} \times \frac{5e}{7e(e+1)} = \frac{10e(e+1)}{21e^2(e+1)} = \frac{10}{21e}$

c) $\frac{5}{6q(q-3)} \times \frac{2(q-3)}{7q} = \frac{10(q-3)}{42q^2(q-3)} = \frac{5}{21q^2}$

d) $\frac{3v}{8(v-2)} \times \frac{9v(v-2)}{10} = \frac{27v^2(v-2)}{80(v-2)} = \frac{27v^2}{80}$

e) $\frac{7(3w-2)}{8w} \times \frac{5}{8w(3w-2)} = \frac{35(3w-2)}{64w^2(3w-2)} = \frac{35}{64w^2}$

f) $\frac{3u(u-1)}{4} \times \frac{6}{7(u-1)} = \frac{18u(u-1)}{28(u-1)} = \frac{9u}{14}$

6: a) $\frac{5z(z+4)}{9z} \times \frac{7z}{9(z+4)} = \frac{35z^2(z+4)}{81z(z+4)} = \frac{35z}{81}$

b) $\frac{3b}{10(b+2)} \times \frac{2b(b+2)}{9} = \frac{6b^2(b+2)}{90(b+2)} = \frac{b^2}{15}$

c) $\frac{8n}{9n(3n+1)} \times \frac{7(3n+1)}{10n} = \frac{56n(3n+1)}{90n^2(3n+1)} = \frac{28}{45n}$

d) $\frac{2}{5a(2a-1)} \times \frac{4(2a-1)}{9a} = \frac{8(2a-1)}{45a^2(2a-1)} = \frac{8}{45a^2}$

e) $\frac{5}{6k(k+3)} \times \frac{4(k+3)}{5} = \frac{20(k+3)}{30k(k+3)} = \frac{2}{3k}$

f) $\frac{4(g-4)}{7} \times \frac{9g}{10g(g-4)} = \frac{36g(g-4)}{70g(g-4)} = \frac{18}{35}$