N5 Maths: Algebraic Fractions

Q1 Simplify:

a) $\frac{6x}{8}$ **b)** $\frac{x^3}{x}$ **c)** $\frac{xy}{x}$

d) $\frac{12x^2}{15x}$ **e)** $\frac{6ab}{9a}$ **f)** $\frac{8}{12x}$

g) $\frac{2x^2y}{3xy}$ **h)** $\frac{18p^3}{6p}$ **i)** $\frac{2n}{10n^3}$

Q2 Fully factorise the numerator and denominator, and then simplify:

a) $\frac{2a-10}{3a-15}$ **b)** $\frac{x^2-9}{x+3}$ **c)** $\frac{4c+1}{12c+3}$

d) $\frac{x^2+5x+4}{x^2+2x+1}$ **e)** $\frac{x^3+5x^2+4x}{x^2+2x+1}$ **f)** $\frac{5q+5}{q^2-6q-7}$

Q3 Express the answer to each addition or subtraction as a single fraction, fully simplified:

a) $\frac{4x}{9}+\frac{5x}{6}$ **b)** $\frac{4}{5x}+\frac{2x}{3}$ $(x \neq 0)$

c) $\frac{1}{x-2}+\frac{3}{x+3}$ $(x \neq 2, x \neq -3)$ **d)** $\frac{4}{n+1}-\frac{2}{n-3}$ $(n \neq -1, n \neq 3)$

e) $\frac{a-1}{3}-\frac{a}{6}$ **f)** $\frac{3}{x^2}-\frac{x+2}{5x}$ $(x \neq 0)$

Q4 Multiply, giving your answers in their lowest terms:

a) $\frac{2x}{3}\times\frac{9}{4x}$ $(x \neq 0)$ **b)** $\frac{5x^2}{7}\times\frac{21}{10x}$ $(x \neq 0)$

c) $\frac{7}{n^3}\times\frac{2n}{35}$ $(n \neq 0)$ **d)** $\frac{6y^3}{y-1}\times\frac{1}{4y}$ $(y \neq 0, y \neq 1)$

Q5 Divide, giving each answer in its simplest form:

a) $\frac{2}{x}\div\frac{3}{x}$ $(x \neq 0)$ **b)** $\frac{3}{a-5}\div\frac{6a}{5}$ $(a \neq 5)$

c) $\frac{28}{xy}\div\frac{7}{3y^2}$ $(x \neq 0, y \neq 0)$ **d)** $\frac{49x}{4y^2}\div\frac{35y}{28x^2}$ $(x \neq 0, y \neq 0)$

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