Algebraic fractions worksheet

Q1. AO2

(a) Simplify fully $\frac{9x-3}{18x+3}$

.....**[2]**

(b) Simplify fully $\frac{x^2+11x+30}{x^2+7x+6}$

.....**[3]**

(c) Simplify fully $\frac{3x^2-4x-15}{5x^2-9x-18}$

.....**[3]**

(d) Simplify fully $\frac{x^2+xy-2y^2}{x^2+3xy+2y^2}$

.....**[2]**

Q2. AO2

(a) Simplify fully $\frac{10a^3}{7} \times \frac{14}{5b^2}$

.....**[3]**

(b) Simplify fully $\frac{x-5}{2} \times \frac{5}{2x-10}$

.....**[3]**

(c) Simplify fully $\frac{3}{x} \times \frac{x^2}{5} \times \frac{x}{6y}$

.....**[3]**

Q3. AO2

(a) Simplify fully $\frac{y+2}{3} \div \frac{2y(y+2)}{15}$

.....**[3]**

(b) Simplify fully $\frac{50zyx}{150z} \div \frac{30y^2}{50x^2}$

.....**[3]**

(c) Simplify fully $\frac{ab^3}{20c} \div \frac{abc}{280}$

.....**[3]**

Q4. AO2

(a) Simplify fully $\frac{x+3}{4} + \frac{x-5}{3}$

.....**[3]**

(b) Simplify fully $\frac{3}{x+1} - \frac{2}{x+2}$

.....**[3]**

(c) Simplify fully $\frac{3}{x^2+6x+5} - \frac{2}{x+1}$

.....**[3]**

Q5. AO3

An expression of the form $\frac{ax^2+bx+c}{dx^2-16}$ simplifies to $\frac{x+2}{3x+4}$. What was the original expression?

.....**[4]**

Q6. AO2

Show that $\frac{2}{x+1}+\frac{5}{x+2}=3$ simplifies to $3x^2+2x-3=0$

.....**[3]**

Answers

Q1.

$\frac{3x-1}{6x+1}$

$\frac{x+5}{x+1}$

$\frac{3x+5}{5x+6}$

$\frac{x-y}{x+y}$

Q2.

$\frac{4a^3}{b^2}$

$\frac{5}{4}$

$\frac{x^2}{10y}$

$\frac{4a^3}{b^2}$

Q3.

$\frac{5}{2y}$

$\frac{5x^3}{9y}$

$\frac{14b^2}{c^2}$

Q4.

$\frac{7x-11}{12}$

$\frac{x+4}{(x+2)(x+2)}$

$\frac{-2x-7}{(x+5)(x+1)}$

Q5.

$\frac{3x^2+2x-8}{9x^2-16}$

Q6.

Show by simplifying fractions

$\frac{2(x+2)+5(x+1)}{(x+1)(x+2)} = 3$

$2(x+2)+5(x+1) = 3(x+1)(x+2)$

$7x+9 = 3x^2+9x+6$

$0 = 3x^2+2x-3$