Topic 10 – Algebraic Fractions and Cancelling (From Edexcel 6665)

Note: A link to the associated YouTube tutorial can be found at ALevelMathsRevision.com/bridging-the-gap/

Q1, (Jun 2010, Q1)

Simplify fully

$$\frac{2x^2+9x-5}{x^2+2x-15}$$

(3)

Q2, (Jun 2006, Q1)

(a) Simplify $\frac{3x^2-x-2}{x^2-1}$.

(3)

(b) Hence, or otherwise, express $\frac{3x^2-x-2}{x^2-1}-\frac{1}{x(x+1)}$ as a single fraction in its simplest form.

(3)

Q3, (Jun 2007, Q2)

$$f(x)=\frac{2x+3}{x+2}-\frac{9+2x}{2x^2+3x-2},$$

Show that $f(x)=\frac{4x-6}{2x-1}$.

(7)

Q4, (Jan 2009, Q2)

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

Express $f(x)$ as a single fraction in its simplest form.

(4)

Q5, (Jun 2009, Q7)

The function f is defined by

$$f(x) = 1-\frac{2}{(x+4)}+\frac{x-8}{(x-2)(x+4)}$$

Show that $f(x)=\frac{x-3}{x-2}$

(5)

Q6, (Jan 2010, Q1)

Express

$$\frac{x+1}{3x^2-3} - \frac{1}{3x+1}$$

as a single fraction in its simplest form.

(4)

Q7, (Jan 2006, Q2)

Express

$$\frac{2x^2+3x}{(2x+3)(x-2)} - \frac{6}{x^2-x-2}$$

as a single fraction in its simplest form.

(7)

Q8, (Jan 2011, Q2)

(a) Express

$$\frac{4x-1}{2(x-1)} - \frac{3}{2(x-1)(2x-1)}$$

as a single fraction in its simplest form.

(4)

Given that

$$f(x) = \frac{4x-1}{2(x-1)} - \frac{3}{2(x-1)(2x-1)} - 2,$$

(b) show that

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

(2)

Q9, (Jun 2011, Q7)

$$f(x) = \frac{4x-5}{(2x+1)(x-3)} - \frac{2x}{x^2-9},$$

Show that

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

(5)
