Timester Challenge

Algebraic Fractions

Simplify Fully

$$\frac{2x+6}{x^2+5x+6}$$

Bronze

Simplify fully

$$\frac{x+2}{3}+\frac{x-3}{4}$$

Silver

Show that

$$\frac{4x+12}{x^2-x-12}\div\frac{x+4}{x^3-16x}$$

Simplifies to ax where a is an integer.

Gold

Simplify Fully

$$\frac{x^2-4}{x^2+4x-12}$$

Bronze

Write

$$\frac{2}{x+5}+\frac{3}{x-2}$$

as a single fraction in its simplest form.

Silver

Timester Challenge

Algebraic Fractions

Answers

Simplify Fully

$$\frac{2x+6}{x^2+5x+6}$$

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

$$= \frac{2}{x+2}$$

Bronze

Simplify fully

$$\frac{x+2}{3} + \frac{x-3}{4}$$

$$= \frac{4(x+2)+3(x-3)}{12}$$

$$= \frac{4x+8+3x-9}{12}$$

$$= \frac{7x-1}{12}$$

Silver

Show that

$$\frac{4x+12}{x^2-x-12} \div \frac{x+4}{x^3-16x}$$

Simplifies to ax where a is an integer.

$$= \frac{4(x+3)}{(x+3)(x-4)} \div \frac{x+4}{x(x^2-16)}$$

$$= \frac{4}{x-4} \div \frac{x+4}{x(x+4)(x-4)}$$

$$= \frac{4}{x-4} \div \frac{1}{x(x-4)}$$

$$= \frac{4}{x-4} \times \frac{x(x-4)}{1}$$

$$= \frac{4x(x-4)}{x-4}$$

$$= 4x$$

So $a = 4$

Gold

Simplify Fully

$$\frac{x^2-4}{x^2+4x-12}$$

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

$$= \frac{x+2}{x+6}$$

Bronze

Write

$$\frac{2}{x+5} + \frac{3}{x-2}$$

as a single fraction in its simplest form.

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

$$= \frac{2x-4+3x+15}{(x+5)(x-2)}$$

$$= \frac{5x+11}{(x+5)(x-2)}$$

Silver