ANSWERS

Algebraic Fractions – Past Paper Questions

(ii) $\frac{f}{5}+7=17$

$\frac{f}{5}=10$ (1) So $f=10\times5$

$f=50$ (1)

[2]

19. Solve $\frac{x+3}{x+1}+\frac{3}{x-3}=2$.

Cross multiply $\frac{(x+3)(x-3)+3(x+1)}{(x+1)(x-3)}=2$

$\Rightarrow \frac{x^2+3x-3x-9+3x+3}{x^2+x-3x-3}=2$ (1)

$\Rightarrow \frac{x^2+3x-6}{x^2-2x-3}=2$ (1)

Multiply over the equal sign.

$x^2+3x-6=2(x^2-2x-3)$ (1)

$x^2+3x-6=2x^2-4x-3$

Put all on l.h.s

$0=x^2-7x$ (1)

factorise $0=x(x-7)$ So $x=0$ (1) or $x=+7$. (1)

[6]

18. Express $\frac{x}{3x+1}-\frac{2}{8x-1}$ as a single fraction in its simplest form.

Cross multiply $\frac{x(8x-1)-2(3x+1)}{(3x+1)(8x-1)}$ (1)

$\frac{8x^2-x-6x-2}{24x^2+8x-3x-1}$ (1) (1) $=\frac{8x^2-7x-2}{24x^2+5x-1}$ (1)

[4]

7. *(a)* Solve $\frac{x+5}{3} = 14$.

$x + 5 = 42$ (1)

$x = 37$ (1)

[2]

(b) Solve the following equation.

$$\frac{x+3}{6} + \frac{2x-5}{3} = \frac{2}{9}$$

Cross multiply $\frac{3(x+3) + 6(2x-5)}{18} = \frac{2}{9}$ (1)

$\frac{3x+9+12x-30}{18} = \frac{2}{9}$

$\frac{15x-21}{18} = \frac{2}{9}$ (1)

Multiply across the equals sign.

$9(15x-21) = 2 \times 18$ (1)

$135x - 189 = 36$

$135x = 225$ $\therefore x = \frac{225}{135}$ (1)

[4]

(c) Solve $\frac{21-2x}{5} = 4 - x$.

$21 - 2x = 5(4-x)$ (1)

$21 - 2x = 20 - 5x$

$1 = -3x$ (1)

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

[3]

(b) Solve $\frac{2x+3}{6}+\frac{x-1}{3}=\frac{7}{12}$.

Cross multiply

$$\frac{3(2x+3)+6(x-1)}{18}=\frac{7}{12} \quad (1)$$

$$\frac{6x+9+6x-6}{18}=\frac{7}{12}$$

$$\frac{12x+3}{18}=\frac{7}{12} \quad (1)$$

Multiply across the equals sign.

$$12(12x+3)=7\times 18 \quad (1)$$

$$144x+36=126$$

$$144x=90$$

$$x=\frac{90}{144}=\frac{5}{8} \quad (1)$$

[4]