

November 1<sup>st</sup>

**Find two numbers such that their product, sum and difference are in the ratio 5:4:1**

Two numbers  $x$  and  $y$  such that

$$xy : x + y : x - y = 5 : 4 : 1$$

*Hence*

$$4xy = 5(x + y)$$

$$\therefore 4xy - 5x = 5y$$

$$\therefore x(4y - 5) = 5y \quad (1)$$

*Also*

$$x + y = 4(x - y)$$

$$\therefore 5y = 3x \quad (2)$$

*Substituting (2) into (1) gives*

$$x \left( \frac{12}{5}x - 5 \right) = 3x$$

$$\therefore \frac{12}{5}x^2 - 8x = 0$$

$$\therefore x = 0 \text{ or } x = \frac{10}{3}$$

$$\therefore y = 2$$

***The two numbers are  $\frac{10}{3}$  and 2***