ALGEBRA (Q 2 & 3, PAPER 1)

LESSON NO. 1: SOME BASICS

2006

2 (a) Simplify $3(2x+4)-5(x+1)$.

2 (c) (ii) The lengths of the sides of a triangle are

$4\sqrt{x}$, $(x-4)$ and $(x+4)$, where $x > 4$.

Prove that the triangle is right-angled.

SOLUTION

2 (a)

$3(2x+4)-5(x+1)$

$= 6x+12-5x-5$

$= x+7$

> Multiply every term by every term and then tidy up by adding and subtracting like terms.

2 (c) (ii)

The longest side is the hypotenuse. How do you know which side is the longest?

Put a number like 9 in for x and you will see which is the longest side.

If it is right-angled, you need to show that

$$x^2 + y^2 = r^2 \quad \text{.......} \quad \textbf{1}$$

$(4\sqrt{x})^2 + (x-4)^2 = (x+4)^2.$

LHS	RHS
$(4\sqrt{x})^2 + (x-4)^2$	$(x+4)^2$
$= 16x + x^2 - 8x + 16$	$= x^2 + 8x + 16$
$= x^2 + 8x + 16$	

$x + 4$ $x - 4$

$4\sqrt{x}$