7.2 Multiplying Algebraic Expressions

The Second Toki that Hewed the Waka Te Arawa

Some accounts say that Te Arawa was the largest *waka[1]* to sail to Aotearoa from Hawaiki. It was a *waka hourua[2]* with a *whare[3]* built onto it. Te Arawa was built by a great master with a *toki[4]*, a special tool used in *waka* building. A *toki* has an arched blade almost at a right angle to the handle. Two adzes were made and, by tradition, each was named.

To learn the name of the second of these adzes, simplify the algebraic expressions below. The letter beside each question and its answer will give the puzzle code.

$4 \times 2a =$ **T**	
$5 \times a =$ **R**	$7a \times 1 =$ **H**
$5a \times 4b =$ **E**	$3b \times 5a =$ **A**
$2 \times 4a \times 3b =$ **H**	$3 \times b \times 5 \times a \times 2 =$ **N**
$a \times b \times 9 =$ **A**	$2 \times a \times 4b \times 5c =$ **I**
$c \times a \times b \times 2 =$ **G**	$3b \times 4a \times 5c =$ **U**
$(a + b) \times 7 =$ **A**	$a \times b \times (a + 2) =$ **U**

7a	15ab	ab(a+2)	24ab	9ab	60abc	6ab	8a	20ab	6ab	5a	7(a+b)	30ab	2abc	40abc

[1]*Waka* (canoe); [2]*Waka hourua* (double-hulled canoe); [3]*Whare* (house); [4]*Toki* (an adze);