MATHEMATICS CHALLENGE FOR YOUNG AUSTRALIANS
PRIMARY: YEARS 5, 6 and 7
WARM UP PROBLEM 01: SOLUTION

**Squimes**

1. 973641 or 973164

2. No square ends in 8 and no prime ends in 8, nor is 8 itself a prime or a square.

3. The largest squime has at most eight digits, since it cannot contain 8 or 0. If 2 is to be used, it must come first because no square or 2-digit prime ends in 2. No 2-digit prime ends in 5 and only 25 is square. If, therefore, we use 5, it must come after 2. So we begin with 25.

   No 2-digit square begins with 5, but 59 is prime, so 9 is the largest digit that can follow 25. Now we have 259.

   No 2-digit square begins with 9, but 97 is prime, so 7 is the largest digit to follow 259. Now we have 2597.
Continuing in this way, we find that 25973641 is the largest squime.

(There are only ten 8-digit squimes: 25316479, 25316497, 25364179, 25364197, 25364719, 25364971, 25371649, 25971643, 25973164, 25973641.)