MCAN04037_0000[1]MCj02724540000[1]**Prime Decomposition**

**Section A**

Write the following numbers as products of their Prime Factors. Use a Factor Tree as you were shown and remember to simplify the answer using Indices.

1a) 20 b) 25 c) 60 d) 18

e) 100 f) 40 g) 80 h) 160

Compare your answers to f, g and h – what do you notice? Why is this the case?

**Section B – Harder numbers!**

1a) 155 b) 210 c) 1200 d) 525

e) 123 f) 512 g) 1024 h) 2048

**Section C**

Break down each pair of numbers. What do you notice about the answer to the original number, and the square of it (the second number)? 

a)i) 6 ii) 36

b)i) 10 ii) 100

c)i) 12 ii) 144

d)i) 20 ii) 400

**Section D**

Can you explain why these numbers are harder to break down? They are NOT Primes and the answer is not just ‘because they’re bigger’! Section B had some bigger numbers which were ok!

a) 187

b) 667

c) 3293

d) 496933

**Prime Decomposition ANSWERS**

**Section A**

Write the following numbers as products of their Prime Factors. Use a Factor Tree as you were shown and remember to simplify the answer using Indices.

1a) 20 b) 25 c) 60 d) 18

22 x 5 52 22 x 3 x 5 2 x 32

e) 100 f) 40 g) 80 h) 160

22 x 52 23 x 5 24 x 5 25 x 5

Compare your answers to f, g and h – what do you notice? Why is this the case?

**Section B – Harder numbers!**

1a) 155 b) 210 c) 1200 d) 525

5 x 31 2 x 3 x 5 x 7 24 x 3 x 52  3 x 52 x 7

e) 123 f) 512 g) 1024 h) 2048

3 x 41 29 210  211

**Section C**

Break down each pair of numbers. What do you notice about the answer to the original number, and the square of it (the second number)?

a)i) 6 ii) 36

2 x 3 22 x 32

b)i) 10 ii) 100

2 x 5 22 x 52

c)i) 12 ii) 144

22 x 3 24 x 32

d)i) 20 ii) 400

22 x 5 24 x 52

**Section D**

Can you explain why these numbers are harder to break down? They are NOT Primes and the answer is not just ‘because they’re bigger’! Section B had some bigger numbers which were ok!

They are all products of 2 primes and thus have only 2 ‘usable’ factors

a) 187

b) 667

c) 3293

d) 496933