Learning Objective:	To be able to use a prime factor tree to find highest common factor	**Name:**	
		Date:	

Do NOW Activity:

1 Write 5005000 in **standard form**

2 **Expand** $x^2(x - 1)$

3 **Work out** 5.6×35

4 Round 0.02054 correct to **2 significant figures**

5 What is the **gradient** of the line $2y = 6x - 2$?

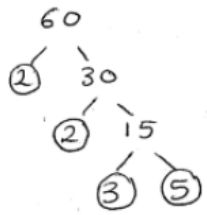
PRIOR KNOWLEDGE CHECK:

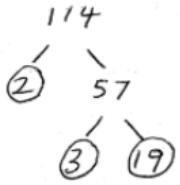
1. I am able to express a number as a product of Prime factors

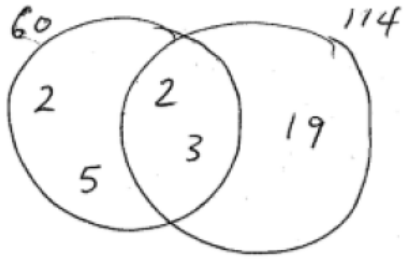
THE MAIN EVENT

WORKED EXAMPLE #1:

Find the highest common factor (HCF) of 60 and 114







$60 = 2 \times 2 \times 3 \times 5$ $114 = 2 \times 3 \times 19$

HCF = 2 × 3 = 6

PRACTICE #1:

Question 1: Find the highest common factor (HCF) of each pair of numbers

(a) 21 and 49	(b) 35 and 45	(c) 18 and 24	(d) 18 and 45
(e) 30 and 75	(f) 28 and 42	(g) 60 and 90	(h) 48 and 64
(i) 56 and 72	(j) 18 and 23	(k) 84 and 96	(l) 38 and 95

WORKED EXAMPLE #2:

$A = 2^2 \times 3 \times 7$ $B = 2^3 \times 3 \times 5^2$ $C = 2 \times 5^2 \times 3$

a) Work out the value of each number.

A = 84 B = 600 C = 150

b) Find the HCF of

i. A & B

$A = 2^2 \times 3 \times 7$ $B = 2^3 \times 3 \times 5^2$

Common factors: $2^2 \times 3$

HCF = 12

ii) A & C

$A = 2^2 \times 3 \times 7$ $C = 2 \times 5^2 \times 3$

Common factors: 2×3

HCF = 6

PRACTICE #2:

Question 1: Given $60 = 2^2 \times 3 \times 5$ and $84 = 2^2 \times 3 \times 7$

Find the highest common factor (HCF)

Question 2: Find the highest common factor of 24, 56 and 88.

Question 3: Fred says that 20 and 21 have got a highest common factor of 0.
Explain why Fred is wrong.

Question 4: Abby and Annie have the same number of coins.
Abby has sorted her coins into groups of 80.
Annie has sorted her coins into groups of 75.
They each have less than 2000 coins.
How many coins do they altogether?

Question 5: Adam is working out the highest common factor of 100 and 112.
He has worked it out to be 22.
Can you explain what he has done wrong?

EXAM PRACTICE :

$648 = 2^3 \times 3^4$ $540 = 2^2 \times 3^3 \times 5$

(a) Write down the highest common factor (HCF) of 648 and 540.

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(1)

$\mathbf{A} = 2^2 \times 3 \times 5^2$ $\mathbf{B} = 2^3 \times 3^2 \times 7$

Write down the highest common factor (HCF) of **A** and **B**.

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(1)