

Key Words	
1. Integer	A positive or negative whole number including 0
2. Operation	$x + - \div \sqrt[3]{x^2}$
3. Inequalities	$\geq \leq <$ Greater than , Less than
4. Identity	\equiv No matter what x equals, both sides will be equal
5. Estimate	Round to 1 significant figure.
6. Factor	A number that divides into another exactly (EG 2 divides into 10 so 2 is a factor of 10).
7. Multiple	A number that can be divided by another number exactly (EG 2 divides into 10 so 10 is a multiple of 2).
8. Prime	A number that can be divided by only 1 and itself.
9. Squared (a^2)	Something multiplied by itself
10. Cubed (a^3)	Something multiplied by itself, and by itself again
11. Root (\sqrt{a})	The number that, when multiplied by itself gives you the number in the root. EG: The $\sqrt{100}$ is 10 (or -10)
12. Reciprocal	If you multiply a number by its reciprocal you get 1 e.g. $5 \times 1/5 = 1$
13.Bounds	Upper and Lower limits of a number, before it was rounded.
14. Recurring	A number that repeats

Number



Key Concepts

1. Product rule for counting.

Multiply the number of digits by the next number of digits to get the number of total combinations.

e.g. Bike -4 reel padlock with 10 numbers on each reel

$$10 \times 10 \times 10 \times 10 = 10000$$

Combination 3 code lock with 6 digits on each reel

$$6 \times 6 \times 6 = 216$$

2. Highest Common Factor

If you have two numbers, you can find their **highest common factor**. This is the highest number that divides into both numbers given. Eg: The HCF of 8 and 12 is 4 as its the highest factor that the numbers 8 and 4 share.

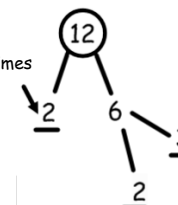
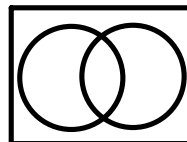
3. Lowest (least) Common Multiple

If you have two numbers, you can find their **lowest common multiple**. this is the lowest number common in both multiplication tables. EG The LCM of 8 and 6 is 24 as it is the first number to appear in both the 6 and 8 timetable.

4. Product of Prime Factors

Venn Diagrams: Use prime factor trees with Venn Diagrams to help find HCF's and LCM's.

Underline the primes



Key Facts

$$1. a^2 = a \times a$$

$$2. a^3 = a \times a \times a$$

$$3. a^n \times a^m = a^{n+m} \text{ (when multiplying, add the powers)}$$

$$4. a^n \div a^m = a^{n-m} \text{ (when dividing, subtract the powers)}$$

$$5. (a^n)^m = a^{nm} \text{ (a power to a power means multiply the powers)}$$

$$6. \text{Primes} = 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31 \dots$$

$$7. \text{Square Numbers} = 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144 \dots$$

$$8. \text{Cube numbers} = 1, 8, 27, 64, 125 \dots$$

$$9. a^0 = 1 \text{ (except } 0^0 = 0 \text{)}$$

$$10. \text{Product of primes - use a prime factor tree (see key concepts)}$$

$$\text{EG: } 20 = 2 \times 2 \times 5 = 2^2 \times 5$$