

Factors are numbers which, when multiplied, give you a product. Multiples are the result of multiplying two whole numbers. Common Factors are factors shared by two or more numbers. Common multiples are multiples shared by two or more numbers. Square numbers are formed by squaring whole numbers ($1^2, 2^2$, etc). Cube numbers are found by cubing whole numbers ($1^3, 2^3$, etc.).

Factors of 12: 1, 2, 3, 4, 6, 12

Multiples of 4: 4, 8, 12, 16, 20, ...

Integers: -5, -4, -3, 2, -1, 0, 1, 2, 3, 4, ...

Factors of 15: 1, 3, 5, 15

Multiples of 10: 10, 20, 30, 40, ...

Whole Numbers: 0, 1, 2, 3, 4, 5...

1. Write down the first 5:

- a) triangular numbers _____ b) square numbers _____
 c) cube numbers _____ d) prime numbers _____
 e) whole numbers _____ f) integers greater than -3 _____

2. From the following numbers, {4, -1, 0, 9, 11, 6, 3, 8} write down a:

- a) multiple of 6 _____ b) factor of 12 _____ c) square number _____
 d) cube number _____ e) triangular number _____ f) prime number _____

3. From the following numbers, {17, 22, 24, 25, 26, 35, 43, 44, 50} write down the:

- a) multiple of 7 _____ b) prime numbers _____ c) multiples of 11 _____
 d) two numbers with a difference of 9 _____ e) number with the same value as $7 + 3 \times 5$ _____

4. From the following numbers, {4, 5, 6, 15, -3, $\frac{1}{2}$, π , $\sqrt{2}$ } write down the:

- a) square root of 9 _____ b) irrational numbers _____ c) factors of 100 _____
 d) cube root of 64 _____ e) HCF of 12 and 18 _____ f) odd numbers _____

5. Complete the blank by using the words {factor, multiple, square root, square, cube, cube root}:

- a) 10 is a _____ of 5 b) 64 is a _____ of 4 c) 5 is a _____ of 5
 d) 10 is a _____ of 100 e) -5 is a _____ of 25 f) 16 is a _____ of 4
 g) 3 is a _____ of 27 h) 3 is a _____ of 6 i) 4 is the _____ of 16

6. Write down the next 3:

- a) triangular numbers greater than 6: _____, _____, _____ b) square numbers greater than 40: _____, _____, _____
 c) integers greater than 18: _____, _____, _____ d) prime numbers greater than 50: _____, _____, _____
 e) factors of 8 greater than 26: _____, _____, _____ f) multiples of 17 greater than 41: _____, _____, _____
 g) square numbers greater than 100: _____, _____, _____ h) cube numbers greater than 50: _____, _____, _____

7. List the Highest Common Factor of:

- a) 10 and 12: _____ b) 20 and 32: _____ c) 15 and 40: _____ d) 18 and 21: _____ e) 56 and 28: _____
 f) 19 and 13: _____ g) 9 and 18: _____ h) 215 and 125: _____ i) 120 and 45: _____ j) 77 and 99: _____

8. List the Least Common Multiple of:

- a) 10 and 5: _____ b) 18 and 12: _____ c) 20 and 30: _____ d) 15 and 25: _____ e) 16 and 18: _____
 f) 6 and 9: _____ g) 24 and 36: _____ h) 10 and 12: _____ i) 5 and 15: _____ j) 100 and 25: _____

9. 'Goldbach's Conjecture' states that every **EVEN** number greater than 2 can be written as the **sum** of **two prime numbers**. Show this is true for all even numbers between 4 and 30

- 4: _____ 6: _____ 8: _____ 10: _____ 12: _____ 14: _____ 16: _____
 18: _____ 20: _____ 22: _____ 24: _____ 26: _____ 28: _____ 30: _____