

## Stepping Stones for Indices

### 1) Indices

- 1) Write 100 as  $10 \times 10$ . Write 1000 as a multiplication of 10s. How many 10s are multiplied?
- 2) Write 10,000 as a multiplication of 10s. how many 10s are multiplied ?
- 3) Write 10 as T and repeat the above. We write  $T \times T$  as  $T^2$  and  $T \times T \times T$  as  $T^3$ . This is known as the index form.
- 4) Write 10000 in the index form.
- 5) What is  $T^2 \times T^2$ ?
- 6) What is  $T^3 \times T^2$ ? What is the rule that we can make for this?
- 7) Write 4,8,16, 32 and 64 as a product of prime factors. Write it in index form.
- 8) Repeat the examples 1 to 6 using 2 in place of 10.
- 9) Use the rule for doing the following multiplication :  $10^3 \times 10^0$  . So we see that  $10^0$  is 1.
- 10) Repeat the example i using 2 in place of 10. What is  $2^0$ ?
- 11)  $10^3/10$  is what?  $10^4/10$  is what? Can we write  $1/10$  in index form using the rule as a guide?
- 12)  $10^3/10^2$  is what?  $10^2/10^2$  is what? Use the rule to write  $1/10^2$  in index form.
- 13) Repeat the above using 2 in place of 10
- 14) Repeat the above using 3 in place of 10.
- 15) Repeat the above using 'a' in place of T
- 16) What is  $a^{-1}$ ? What is  $a^{(-2)}$ ? (write them as inverses)