

1. Fill in the blanks:**(i) In the expression 3^7 , base = And exponent =****Solution:-**In the expression 3^7 , base = 3 and exponent = 7**(ii) In the expression $(-7)^5$, base = and exponent =****Solution:-**In the expression $(-7)^5$, base = -7 and exponent = 5**(iii) In the expression $(2/5)^{11}$ base = And exponent =****Solution:-**In the expression $(2/5)^{11}$, base = $2/5$ and exponent = 11**(iv) If base is 6 and exponent is 8, then exponential form = _____****Solution:-**If base is 6 and exponent is 8, then exponential form = 6^8 **2. Find the value of the following:****(i) 2^6** **Solution:-**

$$2^6 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$$

(iii) 5^5 **Solution:-**

$$5^5 = 5 \times 5 \times 5 \times 5 \times 5 = 3125$$

(iii) $(-6)^4$ **Solution:-**

$$-6 \times -6 \times -6 \times -6 = 1296$$

(iv) $(2/3)^4$ **Solution:-**

$$(2/3) \times (2/3) \times (2/3) \times (2/3) = 16/81$$

(v) $(-2/3)^5$ **Solution:-**

$$(-2/3)^5 = (-2/3) \times (-2/3) \times (-2/3) \times (-2/3) \times (-2/3) = -32/729$$

(vi) $(-2)^9$

Solution:-

$$-2 \times -2 \times -2 \times -2 \times -2 \times -2 \times -2 \times -2 \times -2 = -512$$

3. Express the following in the exponential form:

(i) $6 \times 6 \times 6 \times 6 \times 6$

Solution:-

$$6 \times 6 \times 6 \times 6 \times 6 = 6^5$$

(ii) $t \times t \times t$

Solution:-

$$t \times t \times t = t^3$$

(iii) $2 \times 2 \times a \times a \times a \times a$

Solution:-

$$2 \times 2 \times a \times a \times a \times a = 2^2 a^4$$

(iv) $a \times a \times a \times c \times c \times c \times c \times d$

Solution:-

$$a \times a \times a \times c \times c \times c \times c \times d = a^3 c^4 d$$

4. Simplify the following

(i) 7×10^3

Solution:-

Above question can be written as,

$$= 7 \times 10 \times 10 \times 10$$

$$= 7 \times 1000$$

$$= 7000$$

(ii) $2^5 \times 9$

Solution:-

Above question can be written as,

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 9$$

$$= 32 \times 9$$

$$= 288$$

(iii) $3^3 \times 10^4$

Solution:-

$$\begin{aligned} \text{Above question can be written as,} \\ &= 3 \times 3 \times 3 \times 10 \times 10 \times 10 \times 10 \\ &= 27 \times 10000 \\ &= 2,70,000 \end{aligned}$$

5. Simplify the following

(i) $(-3) \times (-2)^3$

Solution:-

$$\begin{aligned} \text{Above question can be written as,} \\ &= (-3) \times (-2) \times (-2) \times (-2) \\ &= (-3) \times (-8) \\ &= 24 \end{aligned}$$

(ii) $(-3)^2 \times (-5)^2$

Solution:-

$$\begin{aligned} \text{Above question can be written as,} \\ &= (-3) \times (-3) \times (-5) \times (-5) \\ &= 9 \times 25 \\ &= 225 \end{aligned}$$

(iii) $(-2)^3 \times (-10)^4$

Solution:-

$$\begin{aligned} \text{Above question can be written as,} \\ &= (-2) \times (-2) \times (-2) \times (-10) \times (-10) \times (-10) \times (-10) \\ &= -8 \times 10000 \\ &= -80000 \end{aligned}$$

(iv) $(-1)^9$

Solution:-

$$\begin{aligned} \text{Above question can be written as,} \\ &= (-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) \\ &= -1 \end{aligned}$$

(v) $25^2 \times (-1)^{31}$

Solution:-

Above question can be written as,
 $= 25 \times 25 \times (-1)$
 $= 625 \times (-1)$
 $= -625$

(vi) $4^2 \times 3^3 \times (-1)^{122}$

Solution:-

Above question can be written as,
 $= 4 \times 4 \times 3 \times 3 \times 3 \times 1$
 $= 16 \times 27 \times 1$
 $= 432$

6. Identify the greater number in each of the following:

(i) 4^3 or 3^4

Solution:-

Above question can be written as,
 $4 \times 4 \times 4 = 64$
 $3 \times 3 \times 3 \times 3 = 81$
By comparing the two results,
 3^4 is the greater number.

(ii) 7^3 or 3^7

Solution:-

Above question can be written as,
 $7 \times 7 \times 7 = 343$
 $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 2,187$
By comparing the two results,
 3^7 is the greater number.

(iii) 4^5 or 5^4

Solution:-

Above question can be written as,
 $4 \times 4 \times 4 \times 4 \times 4 = 1024$
 $5 \times 5 \times 5 \times 5 = 625$
By comparing the two results,
 4^5 is the greater number.

(iv) 2^{10} or 10^2

Solution:-

Above question can be written as,

$$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 1024$$

$$10 \times 10 = 100$$

By comparing the two results,

2^{10} is the greater number.

7. Write the following numbers as power of 2:

(i) 8

Solution:-

8 can be write as power of 2,

$$\begin{array}{r|l} 2 & 8 \\ \hline 2 & 4 \\ \hline & 2 \end{array}$$

$$2 \times 2 \times 2 \times 2 = 2^4$$

(ii) 128

Solution:-

128 can be write as power of 2,

$$\begin{array}{r|l} 2 & 128 \\ \hline 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline & 2 \end{array}$$

$$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^7$$

(iii) 1024

Solution:-

1024 can be write as power of 2,

$$\begin{array}{r|l} 2 & 1024 \\ \hline 2 & 512 \\ \hline 2 & 256 \\ \hline 2 & 128 \\ \hline 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline & 2 \end{array}$$

$$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^{10}$$

