

Class: Eight

Subject- Mathematics

Source: Photos of exercise are given below.

Work: Complete all the work of pages 114 & 115

Do your work neatly

EXERCISE 9.1

General Section - Classwork

Let's tell and write the answers using the laws of indices as quickly as possible.

1. a) $x^2 \times x = \dots\dots\dots$ b) $a^2 \times a^3 = \dots\dots\dots$ c) $p^4 \times p^6 = \dots\dots\dots$
 d) $y^2 + y = \dots\dots\dots$ e) $z^5 + z^2 = \dots\dots\dots$ f) $x^e + x^e = \dots\dots\dots$
 g) $(x^2)^3 = \dots\dots\dots$ h) $(y^3)^2 = \dots\dots\dots$ i) $(p^e)^6 = \dots\dots\dots$
 j) $(x^2y^2)^2 = \dots\dots\dots$ k) $(ab^3)^2 = \dots\dots\dots$ l) $(x^e y^e)^e = \dots\dots\dots$
 m) $x^e = \dots\dots\dots$ n) $5^e = \dots\dots\dots$ o) $(x + 2)^e = \dots\dots\dots$

2. Let's use the law of negative index and answer with positive index.

a) $x^{-2} = \dots\dots\dots$ b) $p^{-3} = \dots\dots\dots$ c) $a^{-5} = \dots\dots\dots$
 d) $\frac{1}{a^3} = \dots\dots\dots$ e) $\frac{1}{x^4} = \dots\dots\dots$ f) $\frac{1}{p^3} = \dots\dots\dots$

3. Let's use root law of index and write the answers.

a) $x^{\frac{1}{2}} = \dots\dots\dots$ b) $3^{\frac{2}{3}} = \dots\dots\dots$ c) $a^{\frac{m}{n}} = \dots\dots\dots$
 d) $\sqrt{3} = \dots\dots\dots$ e) $\sqrt[3]{5^2} = \dots\dots\dots$ f) $\sqrt[n]{a^r} = \dots\dots\dots$

4. a) For what power of q is its value 1? $\dots\dots\dots$
 b) If $3^x = 1$, what is the value of x ? $\dots\dots\dots$
 c) What is the value of $5^2 \times 5^{-2}$? $\dots\dots\dots$
 d) What is the value of 1^{a+b} ? $\dots\dots\dots$
 e) What should be the power of x so that its value will be $\frac{1}{x^2}$? $\dots\dots\dots$
 f) For what power of $(a + 2)$ the value of $\frac{3}{a + 2}$ is 3? $\dots\dots\dots$
 g) For what power of p will it be $\sqrt[3]{p^3}$? $\dots\dots\dots$

Creative Section - A

Laws of Indices

5. Let's find the products or quotients in the exponential forms by using laws of indices.

a) $2^3 \times 2^5 \times 2^{-1}$

b) $9^3 \times 3^{-3} \times 27^2$

c) $(5x)^2 \times (25x^2)^2 \times (5x)^{-10}$

d) $(xy)^7 \times (xy)^{-3} \times (xy)^{-8}$

e) $3ax^2 \times xa^3 \times ax^4 \times a^2$

f) $\frac{1}{x^2} \times \frac{1}{x^{-3}} \times \sqrt[2]{x^6}$

g) $3^8 \div 3^2$

h) $25^8 \div 5^7$

i) $8^2 \div 2^{10}$

j) $(y^3)^{-3} \div \frac{1}{y^{-2}}$

k) $x^{m-1} \div x^{m-1}$

l) $p^{a-b} \div p^{b-a}$

6. Let's apply the laws of indices and simplify.

a) $(x^2)^3$

b) $(p^2q^3)^2$

c) $(xy^{-2})^{-3}$

d) $\left(\frac{1}{ab}\right)^{-2}$

e) $\left(\frac{xy}{x^2y^2}\right)^{-2}$

f) $\sqrt{x^2}$

g) $\sqrt[2]{y^3}$

h) $\sqrt[2]{x^3y^2}$

i) $\sqrt[3]{\left(\frac{x}{y}\right)^3}$

j) $\sqrt[3]{\sqrt{x^3}}$

7. Let's evaluate.

a) $(2^2)^3$

b) $(3^6)^{\frac{1}{2}}$

c) $(5^3)^{\frac{1}{3}}$

d) $(7^{-3})^{\frac{1}{3}}$

e) $\left(\frac{2^3}{3^2}\right)^{-1}$

f) $4^{\frac{1}{2}}$

g) $9^{\frac{1}{2}}$

h) $8^{\frac{1}{3}}$

i) $16^{\frac{1}{4}}$

j) $8^{-\frac{1}{3}}$

k) $81^{-\frac{1}{4}}$

l) $\left(\frac{16}{25}\right)^{\frac{1}{2}}$

m) $\left(\frac{16}{81}\right)^{-\frac{1}{4}}$

n) $\left(\frac{625}{81}\right)^{-0.5}$

o) $\left(\frac{243}{32}\right)^{-0.4}$

8. Let's evaluate.

a) $\sqrt{2^2}$

b) $(\sqrt{2^4})^{-1}$

c) $\sqrt[2]{5^3}$

d) $\sqrt[3]{\frac{1}{2^4}}$

e) $\sqrt[2]{2^3}$

f) $\sqrt[3]{8}$

g) $\sqrt[4]{16}$

h) $\sqrt[3]{27^{-1}}$

i) $\sqrt[4]{\frac{1}{81}}$

j) $\sqrt[3]{32^{-2}}$

k) $\sqrt[3]{\frac{64}{125}}$

l) $\sqrt{\sqrt[3]{4^3}}$

m) $\sqrt[3]{\sqrt{64}}$

n) $\sqrt[4]{\sqrt{256}}$

o) $\sqrt[3]{\sqrt{\sqrt{27^3}}}$

Creative Section - B

9. Let's simplify.

a) $\frac{2^2 \times 2^3 \times 2^4}{2 \times 2^5}$

b) $\frac{3^3 \times 3^5 \times 3^7}{3^2 \times 9^3}$

c) $\frac{4^2 \times 2^4 \times 8^2}{2^2 \times 4^5}$

d) $\frac{25^3 \times 5^2 \times 625}{5^4 \times 125^2}$

e) $\frac{4^4 \times 5^5}{25^2 \times 16^2}$

f) $\frac{8^4 \times 9^5}{16^2 \times 27^3}$

g) $\frac{4^2 \times 9^2 \times 6^4}{8^2 \times 27^4}$

h) $\frac{3^5 \times 25^5 \times 225}{9^3 \times 125^4}$

10. Let's simplify.

a) $x^{b-c} \times x^{c-a} \times x^{a-b}$

b) $(x^a)^{b-c} \times (x^b)^{c-a} \times (x^c)^{a-b}$

c) $(x^{a-b})^c \times (x^{b-c})^a \times (x^{c-a})^b$

d) $(x^{a+b})^{a-b} \times (x^{b+c})^{b-c} \times (x^{c+a})^{c-a}$

Subject- Opt. Mathematics

2. If the translation vector is defined by $T = \begin{pmatrix} 2 \\ -4 \end{pmatrix}$, find the images of the following points under the translation.
- a. $A(2, 5)$ b. $P(-3, -2)$ c. $M(-2, 6)$ d. $B(-4, 3)$
e. $C(4, -7)$ f. $F(0, 0)$
3. a. What is the translation vector if point $A(3, -5)$ is translated to $A'(-1, 2)$.
b. If a translation vector maps $A(-4, 8)$ to $A'(2, 3)$, find the translation vector.
c. Find the translation vector which maps $P(x, y)$ to $P'(x + a, y + b)$.

Subject-Extra Reading

Homework will be given in zoom class.

Subject- Science

1. Define simple machine. Write its 5 examples.
2. By how many ways simple machine works? Write them.
3. Define load and effort. Also write their SI units.
4. What is input work of simple machine? Write the formula used to calculate it.

The End.