

Class: Ten

Subject- Mathematics

Source: Photos of exercise are given below.

Work: Complete all the work from given pages.

Do your work neatly

EXERCISE 10.2

Indices

General section

1. Solve.

a) $2^{x-4} = 4^{x-6}$	b) $9^{x-1} = 3^{x+1}$	c) $4^{2x-1} = 2^{x+1}$
d) $3^{2x+1} = 9^{2x-1}$	e) $25^{x+2} = \frac{1}{0.04}$	f) $10^{3x-3} = \frac{1}{0.001}$
g) $3 \times 81^x = 9^{x+4}$	h) $2^{x+1} - 2^x = 8$	i) $3^{x+2} - 3^x = 54$
j) $3^{x+2} + 3^{x+1} = 1\frac{1}{3}$	k) $4^{x+1} = \frac{1}{8^x}$	l) $4^{x-1} = (\sqrt{2})^x$
m) $(\sqrt{2})^{3x-1} = (\sqrt{4})^{x-2}$	n) $(\sqrt{9})^{x-2} = (\sqrt{3})^{x+1}$	o) $(0.5)^{\frac{1}{2}} = 0.25$
p) $3^{x-2} + 3^x = \frac{10}{9}$	q) $3^{2x+2} - 2 \cdot 9^{x+1} = \frac{1}{3}$	r) $5^x + 5^{x+1} + 5^{x+2} = 155$

2. Solve.

a) $2^{x+2} \times 3^{x+4} = 18$	b) $2^{x-2} \times 3^{x-4} = 3^{-1}$	c) $2^{2x-2} a^{x-2} = 2^{x-2} a^{4-x}$
d) $5^{x-2} \times 3^{2x-8} = 225$	e) $2^{x-3} \times 5^{x-4} = 5$	f) $7^{2x-1} \times 5^{2x-1} = \frac{7}{5}$

Creative section

3. Solve.

a) $2^{2x} + 3 \cdot 2^x - 4 = 0$	b) $2^{2x} - 6 \cdot 2^{x+1} + 32 = 0$	c) $4 \cdot 3^{x-1} - 9^x = 27$
d) $2^{x-2} + 2^{2-x} = 3$	e) $3 \cdot 2^{x+1} - 4^x = 8$	f) $5 \cdot 4^{x-1} - 16^x = 64$
g) $5^{1-x} + 5^{x-1} = \frac{26}{5}$	h) $5^x + 5^{-x} = 25\frac{1}{25}$	i) $5^{x-1} + 5^{2-x} = 126$
j) $2^x + \frac{16}{2^x} = 10$	k) $3^{x+1} + \frac{1}{3^x} - 28 = 0$	l) $7^x + \frac{343}{7^x} = 56$
m) $4^x + \frac{1}{4^x} = 16\frac{1}{16}$	n) $2^x + \frac{1}{2^x} = 4\frac{1}{4}$	o) $3^x + \frac{1}{3^x} = 9\frac{1}{9}$
p) $3^{x+2} + \frac{1}{3^{x-2}} = 30$		

4. a) If $a^x = b$, $b^y = c$ and $c^z = a$, prove that $xyz = 1$.
 b) If $x = y^z$, $y = z^x$ and $z = x^y$, prove that $xyz = 1$.
 c) If $a^x = b^y$ and $b = a^2$, show that $x - 2y = 0$.
 d) If $a = 10^x$, $b = 10^y$ and $a^x b^y = 100$, show that $xy = 1$.
 e) If $x^a \cdot x^b = (x^a)^b$, prove that $\frac{a}{b} + \frac{b}{a} = ab - 2$.
 f) If $x^a = y^b = z^c$ and $y^3 = xz$, show that $\frac{3}{b} = \frac{1}{a} + \frac{1}{c}$.
 g) If $a^p = b^q = c^r$ and $b^2 = ac$, prove that $q = \frac{2pr}{p+r}$.
 h) If $2^x = 3^y = 12^z$, show that $\frac{1}{z} = \frac{1}{y} + \frac{2}{x}$.
 i) If $\sqrt[3]{a} = \sqrt[3]{b} = \sqrt[3]{c}$ and $abc = 1$, prove that $x + y + z = 0$.

5. a) In how many years Rs 2,000 amounts to Rs 2,420 at 10% p.a. compound interest?
 b) In how many years Rs 8,000 amounts to Rs 9,261 at 5% p.a. compound interest?

Subject- Computer

1) Answer the following questions.

- What is cloud computing? List its application areas.
- Write any two advantages and disadvantages of cloud computing.
- What is Artificial Intelligence? List its application areas.
- Write any two advantages and disadvantages of Artificial Intelligence.
- What is virtual reality? Write its application areas.

2) Write a program to input the base and height of triangle and print its area using SUB END SUB. [Hint: $a = 1/2 * b * h$]

3) Write a program to print the reverse of an input number using FUNCTION END FUNCTION.

Subject- HPE

Homework will be given in google classroom.

.विषय - नेपाली

१)हाम्रो संस्कृति पाठबाट पृष्ठ ८६ को लेखाइ बाट १५ र १७ नं अभ्यास गर्नुहोस् ।

२)व्याकरण पुनरावृत्ति गर्नुहोस्।

The End.