

APOLLO

Real Numbers

FBISE Mathematics Class 9 (SSC-I)

Domain A: Numbers and Algebra

38 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

2	The scientific notation of 150 million kilometres is:	1.5×10^6	1.5×10^8	1.5×10^{-6}	1.5×10^{-8}
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3	The temperature in a freezer was $-\frac{9}{2}^{\circ}C$. It increased by $\frac{5}{2}^{\circ}C$. What is the new temperature?	$7^{\circ}C$	$2^{\circ}C$	$-2^{\circ}C$	$-7^{\circ}C$
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1	Using the laws of exponents, simplify: $\left(\frac{2187 \times a^5 \times b^{17}}{a^{12} \times b^3}\right)^{\frac{1}{7}}$	3
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OR	The intensity of sound is measured by $L = 10 \log \left(\frac{I}{I_0}\right)$. A machine produces intensity $1000I_0$. Find the value of L .	3
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A radioactive substance decays according to the formula $M=200 \times 10^{-0.05t}$, where 'M' is mass in grams and 't' is time in years. ایک تابکار مادہ $M=200 \times 10^{-0.05t}$ کے مطابق خراب ہو رہا ہے۔ M گرامز میں ماس ہے اور سالوں میں وقت ہے۔	
a Use logarithms to express 't' in terms of 'M'	بذریعہ لوگر تھمہا کو P پر منحصر دکھائیں
b Find time 't' when mass 'M' reduces to 100 grams.	ٹائم تھمہا معلوم کریں جب $M \approx 100$ گرام ہو جائے
Solve the given linear equation and represent the solution on a number line.	

04

(iii)	The population of a colony is growing according to the formula $P = 2500 \times e^{0.09t}$, where P is the population and t is the time in years ایک کالونی کی آبادی $P = 2500 \times e^{0.09t}$ کے مطابق بڑھ رہی ہے۔ جبکہ P آبادی اور t سالوں میں وقت ہے۔ a Use logarithms to express t in terms of P. بذریعہ لوگر تھمہا کو P پر منحصر دکھائیں b Calculate time t when population increases to 10,000. ٹائم t معلوم کریں جب آبادی 10,000 ہو جائے	04
(iv)	Solve the given linear equation and represent the solution on a number line.	

(i)	Simplify: مختصر کریں: $\frac{(2x^2)^{-4}}{(-4y^{-1}z^2)^{-2}}$	04
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(iii)	Energy magnitude of an earthquake can be calculated by $M = \frac{3}{2} \log_{10} E + 94$ where E is the energy released. Calculate the magnitude of earthquake when $E = 10^4$. Round the answer to nearest whole number.	04
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(iv)	The characteristic of $\log 325$ is: A. 3 B. 2 C. 5 D. 10
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(vi)	In $-15a^3$ the exponent is: A. -15 B. +15 C. a D. 3
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(viii)	$\sqrt{x} =$ A. $x^{\frac{1}{2}}$ B. $x^{\frac{1}{4}}$ C. $x^{\frac{2}{3}}$ D. $x^{\frac{1}{3}}$
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(x)	If $x = 4 - \sqrt{17}$ then value of $\frac{1}{x}$ is: A. $-4 + \sqrt{17}$ B. $4 + \sqrt{17}$ C. $-4 - \sqrt{17}$ D. $\frac{1}{4 - \sqrt{17}}$
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(xi)	$4 \times 5^0 =$ A. 20 B. 4 C. 5 D. 9
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(xiv)	The simplest form of $(125)^{\frac{2}{3}}$ is: A. 25 B. 5 C. $\frac{2}{3}$ D. 5^3
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(i)	Simplify: $\sqrt{180}$
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- (ii) Write the following in exponential form: 5 P.P.P.P

- (iii) Rationalize the denominator: $\frac{1}{4-\sqrt{5}}$

- (iv) Write in scientific notation: 404.4

- (vi) Simplify and write the answer in positive exponents: $(x^2y^3)^{-4}$

- (xv) Simplify: $\sqrt[3]{\frac{9}{100}}$

5 simplify: $3\sqrt{\frac{64a^3b^6}{216c^6d^9}}$

- 6 Construct triangle $\triangle ABC$

- OR calculate:
a. The probability of selecting a white ball.
b. The probability of selecting a black ball
c. The sum of all the probability

OR An earthquake that occurred in Pakistan in 2005, measured 7.6 on the Richter scale. In 1978, an earthquake in China measured 8.2 on the Richter scale. How many times, the China's earthquake was stronger than the Pakistan's earthquake? (Use

$$M = \log\left(\frac{I}{I_0}\right)$$

An earthquake of 1920 was measured about 8.5 on Richter scale and another earthquake of 1923 was measured 7.8 on that scale how many times stronger was the 1920 earthquake than 1923 earthquake? $(M = \log\left(\frac{I}{I_0}\right))$ 04

2. Scientific notation of 71000 is:

$$7.1 \times 10^2$$

$$0.71 \times 10^2$$

$$7.1 \times 10^3$$

$$7.1 \times 10^4$$

	Starting with 500 users, a startup experiences continuous growth at a rate of 8% per year. To determine the number of years it takes for the company to reach 3000 users, use the formula $N(t) = N_0 \times e^{rt}$ where $N(t)$ is the number of users after time t . N_0 is the initial number of users, r is the growth rate and t is the time in years.	
OR		04

FBISE model paper | Section A Q1(i) | 1 mark

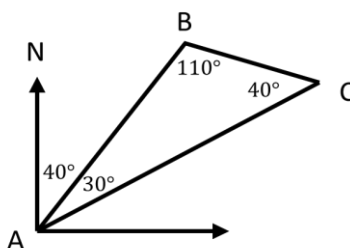
i.	The radical form of $x^{-\frac{3}{2}}$ is:	$\sqrt[3]{x^2}$	$\frac{1}{\sqrt{x^3}}$	$\sqrt{x^3}$	$\frac{1}{\sqrt[3]{x^2}}$
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FBISE model paper | Section A Q1(ii) | 1 mark

ii.	Which of the given options represents the scientific notation of 0.25^2 ?	625×10^{-4}	62.5×10^{-3}	6.25×10^{-2}	0.625×10^{-1}
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FBISE model paper | Section B Q2(i) | 4 marks

Q.2	Question	Mark
i.	Simplify the expression $\left[(125)^{\frac{1}{3}} \times (25)^{\frac{1}{2}} + (64)^{\frac{2}{3}} \times 6 + (8)^{\frac{2}{3}} \right]^{\frac{-2}{3}}$	4

Q.2	Question	Mark
i.	Simplify the expression $\left[(125)^{\frac{1}{3}} \times (25)^{\frac{1}{2}} + (64)^{\frac{2}{3}} \times 6 + (8)^{\frac{2}{3}} \right]^{\frac{-2}{3}}$	4
ii.	The attached figure shows the position of three points A, B, and C. State the bearing of: B from A; A from B; B from C, and C from B. 	4
iii.	Bani Gala had a population of 10,000 people in the year 2015. The population has been growing exponentially at a rate of 2.5% per year. Using the exponential growth formula $P(t) = P_0 e^{rt}$, apply laws of logarithm to determine the year when population reaches up to 25,000.	4

(iv)	If $x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$, then find	اگر $x = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ تو معلوم کریں۔	04	OR	Find the value of $\sqrt{s(s-a)(s-b)(s-c)}$ $a = 5, b = 7, c = 8, s = \frac{a+b+c}{2}$ کی قیمت معلوم کریں۔
	a). $x + \frac{1}{x}$	b). $x^2 + \frac{1}{x^2}$			Factorize

Use the logarithm law $\log_a m \cdot \log_m n = \log_a n$ to prove that $\log_2 4 \cdot \log_4 8 + \log_2 8 \cdot \log_8 16 = 7$ لاگاریتھم کا قانون $\log_a m \cdot \log_m n = \log_a n$ استعمال کر کے ثابت کریں۔	04
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(iii)	Convert $\sqrt[5]{x^3}$ to exponent form and $x^{\frac{7}{3}}$ to radical form. $\sqrt[5]{x^3}$ کو قوت نمائی میں اور $x^{\frac{7}{3}}$ کو ریڈیکل کی شکل میں تبدیل کریں۔	04	OR
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First Annual 2026 | Section A Q4 | 1 mark

3. $\begin{bmatrix} 2 & 4 \end{bmatrix}$ is called:	Square matrix	Unit matrix	matrix	matrix
قالب $\begin{bmatrix} 2 & 4 \end{bmatrix}$ کس قسم کا قالب ہے؟	مربعی قالب	واحد قالب	مستطیلی قالب	وتری قالب
4. $\log\left(\frac{8}{2}\right) =$	$\log 4$	$\log 6$	$\log 10$	$\log 16$

First Annual 2026 | Section A Q8 | 1 mark

7. Product of two algebraic expressions is:	HCF×LCM	HCF+LCM	HCF	HCF:
دو الجبری جملوں کا حاصل ضرب:				
8. $ -5 =$	-5	5	0	10

First Annual 2026 | Section B Q2(i) OR | 4 marks

Show that:	ثابت کریں کہ:	
$\left(\frac{x^a}{k}\right)^{a+b} \times \left(\frac{x^b}{a}\right)^{b+c} \times \left(\frac{x^c}{a}\right)^{c+a} = 1$		04

First Annual 2026 | Section B Q2(ii) OR | 4 marks

Find value of x :	x کی قیمت معلوم کریں:	
$\log_{64} 8 = \frac{x}{2}$		04

First Annual 2026 | Section B Q2(iii) | 4 marks

(iii)	Write the following in sum or difference:	
	$\log\left(\frac{25 \times 47}{29}\right)$ درج شدہ کو مجموعہ یا فرق کی صورت میں لکھیں:	04

First Annual 2026 | Section B Q2(ix) | 4 marks

(ix)	If gross pay of a person is Rs. 45000, then calculate his net take home salary, after deduction of Rs. 400 as income tax, Rs. 1200 as benevolent fund, Rs. 1500 as G.P. fund and Rs. 400 as group insurance.	04	OR	Find $x + \frac{1}{x}$ and $x - \frac{1}{x}$ if: $x = \frac{15}{\sqrt{31} - 1}$
	اگر ایک شخص کی آمدنی میں کوئی کی شکل، 400 روپے، 1200 روپے، 1500 روپے، 400 روپے کے طور پر منہ باندھ دیا جائے، تو اس کی خالص تنخواہ کا حساب لگائیے۔			