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MATHS FOUNDATION BATCH (SIMPLIFICATION) PART-01

MATHS BY SAHIL SIR

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1. $56 \div 7 \times (35 - 45 \div 3) \div 4 = ?$

A. 1.6

B. 48

C. 40

D. 8

2. What is the value of $4 \times [3 \div 4 \{4 \times 3 \div (3 \times 3)\}]$?
$4 \times [3 \div 4 \{4 \times 3 \div (3 \times 3)\}]$ का मान क्या होगा?

A. 3

B. 9

C. 12

D. 4

3. Find the value of 10 - [5 - {6 - (5 - 4 - 3)}].

10 - [5 - {6 - (5 - 4 - 3)}] का मान ज्ञात करें।

A. 13

B. 9

C. 10

D. 12

4. $108 \div 18 \times (55 - 35 \div 5) \div 3 = ?$

A. 96

B. 144

C. 18

D. 120

5. $[\{(161 + (19 - 2) + 1)\} - 3] = ?$

A. 176

B. 171

C. 172

D. 174

6. Find the value of the following:

निम्न का मान ज्ञात कीजिए:

$$10 + \{26 - 15 \times (20 - 5 \div 2 \times \overline{((7 - 5))})\} = ?$$

20 − 5 ÷ 2 × 2

2

10 + 26 − 225

−189

✓ A. -189

B. 198

C. 189

D. -198

7. $154 \div \left[30 - \left\{33 - \left(25 - \frac{176}{16} \div \overline{((4\times4))}\right)\right\}\right] = ?$

11

14

19

154 ÷ 11

14

✓ A. 14

B. 2

C. 22

D. 11

8. $(-7)\,[44 \div \{7 - (-4)\}] = ?$

4

11

-28

A. -77

B. -28 ✓

C. 28

D. 77

TIP

9. $\frac{4}{5}$ of 1218 of $\frac{4}{7}$ of ?

174

1218 का $\frac{4}{5}$ का $\frac{4}{7}$ = ?

5 7

$\frac{174 \times 16 \times 2}{10} = .8$

$\frac{174 \times 32}{10}$

348
5 2 2 0
556.8

A. 415.6
B. 516.8
C. 620.8
✓ D. 556.8

10. Solve / हल करें।

$6 + 6 \div 6 + 6 \times 6 - 6 = ?$

1

$6 + 1 + 36 - 6$

$37 + 6 = 37$

A. 38

✓ B. 37

C. 36

D. 35

11. 78% of 450 + ?% of 250 = 441

450 का 78% + 250 का ?% = 441

$\frac{900}{2} \times 78 + \frac{500}{2} \times x\% = 441$

$441 - 351 = 90$

$\frac{500}{2} \times x = 90$

$x = 36$

A. 45
B. 50
C. 30
✓ D. 36

12. $(800 \div 64) \times (1296 \div 36) = ?$

$\frac{25}{2} \times 36$

25×18

$50 \times 9 = 450$

A. 420

B. 460

C. 500

✓ D. 450

13. Solve/हल कीजिये?

$240 \div 8 \times 512 \div 4$

30 × 128

3840

A. 3940

B. 3340

✓ C. 3840

D. 4040

14. Solve the following/निम्नलिखित को हल कीजिये-

$1800 \div (11 \times 24 \div 8 \times 3 - 69)^2$

$(99 - 69)^2$

$\frac{1800}{900} = 2$

- ✓ A. 2
- B. 3
- C. 5
- D. 4

15. Find the value of/का मान ज्ञात कीजिये?

$30 - (3 \times 4 + 15 \div 3) + 8 \times 3 \div 6$

$30 - 17 + 4$

$13 + 4 = 17$

A. 15

B. 21

C. 19

✓ D. 17

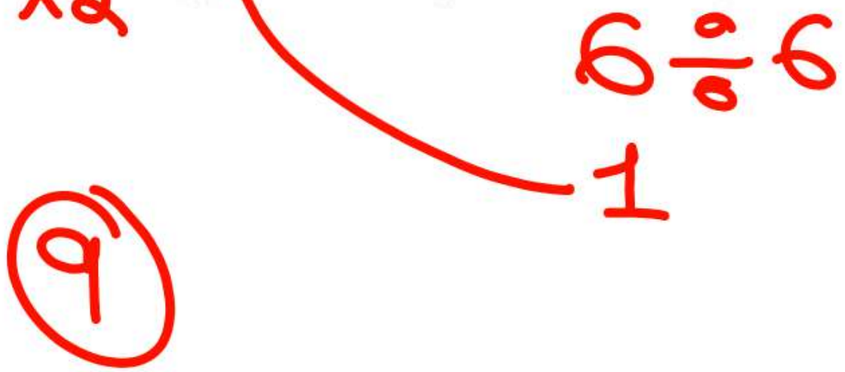
16. 8432 + 937 + 260 − ? = 5605 + 713

9627
− 5605
4022
− 713
3311

A. 3211
B. 4311
C. 3311
D. 15947

17. The value of/ का मान है:

$3 + [3 \times \{3 - (3 + 3) \div 6\}]$



- A. -3
- B. 9 ✓
- C. 6
- D. 3

18. $32 \div 2 \div 2 \div 2 \div 2 = ?$

$\frac{32}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = 2$

A. 8

B. 2 ✓

C. 32

D. 16

19. $5 + 5 \times 5 \div (5 \times 5) \times 5 = ?$

$5 + 5 \times 5 \div 5 \times 5 = 10$

A.	120
B. ✓	10
C.	130
D.	50

20. $81 - [20 + 7 \times (30 - 3 \times 9)] = ?$

$81 - 41 = 40$

A. 40

B. 20

C. 30

D. 0

21. $-5\{-5-(-5-2)-5\} = ?$

$-(-5-2) = +7$

$-5+7-5$

$-5(-3)$

$+15$

A. 18

B. -18

C. -15

✓ D. 15

22. Solve the following:

निम्नलिखित को हल करें:

$(243)^2 \div (27)^2 \times 16 \div 8 = ?$

$$\frac{243 \times 243}{27 \times 27} \times \frac{16}{8}$$

$9 \times 9 = 81$

$81 \times 2 = 162$

A.	70
B.	1
✓ C.	162
D.	81

23. Solve./हल करें।

$49 + 1331 \div 121 - 72 - 5 = ?$

$49 + 11 - 72 - 5$

$60 - 77$

-17

A. −27

B. −17 ✓

C. 17

D. 0

24. Solve the following:

निम्नलिखित को हल करें:

$11 + 11 \div 11 + 11 \times 11 - 11 = ?$

11 + 1 + 121 − 11

122

A. 1

✓ B. 122

C. 0

D. 132

25. Simplify: 245 - [135 - {84 ÷ 4 of 3 - (11 - 12 ÷ 3)}]

सरल कीजिए: 245 - [135 - {84 ÷ 4 of 3 - (11 - 12 ÷ 3)}]

7 18 4

7

0

245
- 135
110

A. 110

B. 100

C. 90

D. 120

26. Solve the following:

निम्नलिखित को हल कीजिये:

$80 \div (16 \div 2) + \{[(6 \times 5) - 15 \times 2 + 4] - 12\}$

8

30 − 30 + 4 − 12

10 − 8

− 8

2

A. –62

B. 2 ✓

C. –17

D. 148

27. Simplify:/सरल करे:

$$1800 \div 10 \times \{45 \div (17 - 2)\} \times 2 + \{-2(1 + 2)\}$$

$$\frac{180 \times 6 - 6}{1080 - 6}$$

A. 180

B. 0

C. 1074 ✓

D. 114

28. If $P = 2 + 0.2 \div (0.2 \times 2) - 1 \times 2$, $Q = 2 - 0.2 \div (0.2 \times 2) - \frac{1}{2} \times 2$, find the value of $\frac{P}{Q}$.

यदि $P = 2 + 0.2 \div (0.2 \times 2) - 1 \times 2$, $Q = 2 - 0.2 \div (0.2 \times 2) - \frac{1}{2} \times 2$ है, तो $\frac{P}{Q}$ का मान ज्ञात कीजिए।

$0.2 \div 0.4 = \frac{1}{2}$

$P = 2 + \frac{1}{2} - 2 = \frac{1}{2}$

$Q = 2 - \frac{0.2}{0.4} - 1 \Rightarrow \frac{1}{2}$

A. 0.5

B. 1.0 ✓

C. 1.5

D. −0.5

29. If P = 0.3 × 0.3 + 0.03 × 0.03 - 0.6 × 0.03 and Q = 0.54, then what is $\frac{P}{Q}$ equal to?

यदि P = 0.3 × 0.3 + 0.03 × 0.03 - 0.6 × 0.03 और Q = 0.54, तब $\frac{P}{Q}$ किसके समतुल्य है?

$P = (0.3)^2 + (0.03)^2 - 2 \times 0.3 \times 0.03$

$P = a^2 + b^2 - 2ab = (a-b)^2$

$P = [0.3 - 0.03]^2 = (0.27)^2 \Rightarrow 0.0729$

$0.30 - 0.03$

$\frac{0.27 \times 0.27}{0.54}$

2

A. 4.5

B. 0.45

C. 4.05

D. 0.135 ✓

30. If $3x + 4 \times 8 \div 9 = x \div 3 - 1$ then find the value of x?

यदि $3x + 4 \times 8 \div 9 = x \div 3 - 1$ है तो x का मान ज्ञात कीजिये?

$$3x + \frac{4 \times 8}{9} = \frac{x}{3} - 1$$

$$\frac{32}{9} + 1 = \frac{x}{3} - 3x$$

$$\frac{41}{9} = -\frac{8x}{3}$$

$$x = -\frac{41}{24}$$

A. 2

B. $\frac{21}{24}$

C. 1

D. $-\frac{41}{24}$ ✓

Answer sheet:

1.	C	2.	D	3.	A	4.	A	5.	A
6	A	7.	A	8.	B	9.	D	10.	B
11.	D	12.	D	13.	C	14.	A	15.	D
16.	C	17.	B	18.	B	19.	B	20.	A
21.	D	22.	C	23.	B	24.	B	25.	A
26	B	27.	C	28.	B	29.	D	30.	D


1 साल लगातार फोकस और जी तोड़
मेहनत, आपको जिंदगी में दूसरों से
5 साल आगे ले जायेगी।

Algebraic Expression Based Simplification

* $(a+b)^2 = a^2+b^2+2ab$

* $(a-b)^2 = a^2+b^2-2ab$

* $(a+b)^3 = a^3+b^3+3ab(a+b)$

* $(a-b)^3 = a^3-b^3-3ab(a-b)$

* $a^3+b^3 = (a+b)(a^2-ab+b^2)$ ★

* $a^3-b^3 = (a-b)(a^2+ab+b^2)$ ★

* $a^2-b^2 = (a+b)(a-b)$

* $(a+b+c)^2 = a^2+b^2+c^2 + 2(ab+bc+ca)$

* $a^3+b^3+c^3-3abc$
$= (a+b+c)[a^2+b^2+c^2 -ab-bc-ca]$

STEP BY STEP EXPRESSION

Ex. $(793+337)^2-(793-337)^2 = x \times \underset{a}{793} \times \underset{b}{337}$

$x = ? \Rightarrow$ (4)

Concept :- $\boxed{(a+b)^2-(a-b)^2 = 4ab}$ . .

Process. $a^2+b^2+2ab-[a^2+b^2-2ab]$

$a^2+b^2+2ab-a^2-b^2+2ab$

Example.

$$\frac{[0.397+0.192]^2-[0.397-0.192]^2}{0.397\times 0.048}=$$

Ans.

4x4

$$\frac{4\times 0.397\times 0.192}{0.397\times 0.048}=16$$

Ex.

$$\frac{-406}{[97-63]^2 - [97+63]^2} = \frac{-406}{3 \times 97 \times 63} = \frac{-2}{3}$$

Ans. $-\frac{4}{3}$

$(a+b)^2+(a-b)^2 = 2(a^2+b^2)$

Proof.

$$a^2+b^2+2ab+a^2+b^2-2ab = 2[a^2+b^2]$$

Example. $\dfrac{(0.03+0.02)^2+(0.03-0.02)^2}{0.03\times0.01} \Rightarrow$ Ans. $\Rightarrow \dfrac{26}{2}$

$$\frac{2[0.0009+0.0004]}{0.0003}$$

Example:-

$$(333+117)^2 - 2(333^2+117^2) = -(x)^2$$

$$(a-b)^2$$

x के अंको का योग
digit Sum of x

(9) ★

$$2+1+6$$

$$(a+b)^2+(a-b)^2 = 2(a^2+b^2)$$

$$(a+b)^2 - 2(a^2+b^2) = -(a-b)^2$$

$$\begin{array}{r} 333 \\ -117 \\ \hline 216 \end{array}$$

Concept

$$a^2 - b^2 = (a+b)(a-b)$$

$(x^4)^2 \Rightarrow x^{4\times 2} = x^8$

$(x^8)^2 \Rightarrow x^{16}$

$(x^{16})^2 = x^{32}$

Ex. $(1-x)(1+x)(1+x^2)(1+x^4)$

$(1-x^2)$

$1-x^4$

$1-x^8$

Ex. $\dfrac{a^4-b^4}{(a+b)^2} \Rightarrow \dfrac{(a^2)^2-(b^2)^2}{(a+b)^2} = \dfrac{(a^2+b^2)(a^2-b^2)}{(a+b)^2}$

$$\frac{(a^2+b^2)\cancel{(a+b)}(a-b)}{(a+b)^{\cancel{2}}}$$

$$\frac{(a^2+b^2)(a-b)}{a+b}$$

Q. $(x-1)(x+1)(x^2+1)(x^4+1)(x^8+1)(x^{16}+1)+1$

x^2-1

x^4-1

x^8-1

$x^{16}-1$

$x^{32}-1+1$

x^{32}

Q. $2(2^2+1)(2^4+1)(2^8+1)$

$\Rightarrow (2^2-1)(2^2+1)(2^4+1)(2^8+1)$

2^2-1

2^4-1

2^8-1

$2^{16}-1$

$(2-1)(2+1)(2^2+1)(2^4+1)(2^8+1)$

$(2-1)$

2^4-1

2^8-1

$\rightarrow \dfrac{2^{16}-1}{1}$

MATHS FOUNDATION BATCH (SIMPLIFICATION) PART-02

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31. $(24)^2 - (18)^2 = ?$

A. 252

B. 336

C. 242

D. 284

32. $(36)^2 - (35)^2 = ?$

A. 73

B. 75

C. 72

D. 71

33. $(25.732)^2 - (15.732)^2 = ?$

A. 4.1464

B. 41.464

C. 414.64

D. 4164.4

34. $(254)^2 - (252)^2 = ?$

A. 872

B. 506

C. 1012

D. 984

35. $32 \times 32 + 1476 + 18 \times 18 = ? + 324$

A. 2000

B. 2500

C. 3000

D. 3600

36. $10.5 \times 10.5 + 7.5 \times 7.5 = ? - 157.5$

A. 256

B. 324

C. 400

D. 484

37. $\frac{(28.4)^2 - (24.4)^2}{28.4 - 24.4} = ?$

A. 52

B. 8

C. 52.8

D. 4

38. $\frac{(256+132)^2+(256-132)^2}{256\times256+132\times132}=?$

A. 1

B. 2

C. 388

D. 124

39. $\frac{(869+674)^2-(869-674)^2}{869\times674}=?$

A. 1543

B. 195

C. 2

D. 4

40. $\left(\frac{375 \times 375 \times 375 + 225 \times 225 \times 225}{375 \times 375 + 225 \times 225 - 375 \times 225}\right) = ?$

A. 300

B. 500

C. 150

D. 600

41. $\left(\frac{158\times158+158\times153+153\times153}{158\times158\times158-153\times153\times153}\right) = ?$

A. $\frac{1}{5}$

B. 311

C. $\frac{1}{311}$

D. 5

42. $\frac{(216+144)^2 - (216-144)^2}{(432\times288)} = ?$

A. 72

B. 4

C. 1

D. 360

43. $\frac{5.47\times5.47-4.53\times4.53}{0.94}=?$

A. 0.94

B. 10

C. 4

D. 1

44. Find the value of $\frac{0.3^4-0.2^4}{0.3^2+0.2^2}$?

$\frac{0.3^4-0.2^4}{0.3^2+0.2^2}$ का मान ज्ञात कीजिये ?

A. 0.05

B. 0.15

C. 0.51

D. 0.5

45. Solve / हल कीजिये

$8.75 \times 8.75 - 135.625 + 7.75 \times 7.75 = ?$

A. 3

B. 1

C. 4

D. 2

46. Find the value of $\frac{515.86\times515.86-314.87\times314.87}{200.99}$

$\frac{515.86\times515.86-314.87\times314.87}{200.99}$ का मान ज्ञात कीजिए

A. 200.19

B. 201

C. 83.073

D. 830.73

47. $\frac{.356\times .356-2\times .356\times .106+ .106\times .106}{.632\times .632+2\times .632\times .368+ .368\times .368} = ?$

A. .0345

B. .0625

C. .25

D. .0765

48. Find the value of 1093 × 1093.

1093 × 1093 का मान ज्ञात कीजिए।

A. 1194649

B. 1162481

C. 1424649

D. 1428481

49. $\frac{(36.54)^2-(3.46)^2}{?} = 40$

A. 3.308

B. 4

C. 33.08

D. None of these

50. $\frac{2.3\times2.3\times2.3-1}{2.3\times2.3+2.3+1}=?$

A. 0.3

B. 1.3

C. 2.2

D. 3.3

51. $\frac{6.5\times4.7+6.5\times5.3}{1.3\times7.9-1.3\times6.9}=?$

A. 3.9

B. 39

C. 34.45

D. 50

52. $1.07 \times 65 + 1.07 \times 26 + 1.07 \times 9 = ?$

A. 10.73

B. 10.7

C. 107

D. 1.07

53. $\frac{69842\times69842-30158\times30158}{69872-30158}=?$

A. 100000

B. 39684

C. 69842

D. 30158

54. $\frac{(0.06)^2+(0.47)^2+(0.079)^2}{(0.006)^2+(0.047)^2+(0.0079)^2} = ?$

A. 0.1

B. 10

C. 100

D. 10000

55. $\sqrt{?} + 84 = \sqrt{625}$

A. 25

B. 26

C. 125

D. None of these

56. Which of the following numbers is the square root of 35721?
निम्न में से कौन-सी संख्या 35721 का वर्गमूल है?

A. 171
B. 201
C. 179
D. 189

57. Which of the following numbers is the square root of 6084?
निम्न में से कौन-सी संख्या 6084 का वर्गमूल है?

A. 68
B. 78
C. 72
D. 79

58. Which of the following numbers is the square root of 16129?
निम्न में से कौन-सी संख्या 16129 का वर्गमूल है?

A. 123
B. 133
C. 127
D. 121

59. Find the number of digits in square root of 21025
21025 के वर्गमूल में अंकों की संख्या बताये।

A. 4
B. 5
C. 2
D. 3

60. Find the number of digits in square root of 9604
9604 के वर्गमूल में अंकों की संख्या बताये।

A. 2

B. 3

C. 1

D. 4

Answer sheet:

31.	A	32.	D	33.	C	34.	C	35.	B
36.	B	37.	C	38.	B	39.	D	40.	D
41.	A	42.	C	43.	B	44.	A	45.	B
46.	D	47.	B	48.	A	49.	C	50.	B
51.	D	52.	C	53.	A	54.	C	55.	D
56.	D	57.	B	58.	C	59.	D	60.	A

Tip

$5 \rightarrow 10/2$

$25 \rightarrow \frac{100}{4}$

$125 \rightarrow \frac{1000}{8}$

$625 \rightarrow \frac{10000}{16}$

$45 \rightarrow 90/2$

$55 \rightarrow 110/2$