EXPRESSWALA ACADEMY

Primary Number System

Question Paper, Set 09

Time: 1 hour 30 minutes | Maximum marks: 50

Name: _____ Class: _____ Date: _____

1. Answer all 20 questions. The marks for each question are shown in brackets.
2. Show your working for the 2, 3 and 5 mark questions.
3. The key sheet and worked solutions are at the end of this paper.

1. Write the first four whole numbers. [1 mark]

2. Is 4161 even or odd? Give reason. [1 mark]

3. Write the multiples of 25 that are less than 210. [3 marks]

4. Find all the factors of 75 by writing it as a product of two numbers. [2 marks]

5. Find all the factors of 160. How many factors does it have? [5 marks]

6. What is another name for a variable? [1 mark]

7. Write $15 \times q$ in short form. [1 mark]

8. Simplify: (i) $6q + 4q + 7q$ (ii) $25q - 17q$ [2 marks]

9. Write r^5 as a product and write how it is read. [2 marks]

10. Find the value of 58×58. [2 marks]

11. Find 14^3, showing the steps. [3 marks]

12. Express 100000000 in the exponential form (i) with base 10 (ii) with base 100. [5 marks]

13. Is 27594 divisible by 2? Give reason. [1 mark]

14. Is 555556 divisible by 3? Give reason. [2 marks]

15. Find the smallest number greater than 930 that is divisible by 3. [3 marks]

16. Is 60884 divisible by 4? Give reason. [2 marks]

17. Is 94105 divisible by 5? Give reason. [1 mark]

18. Is 70245 divisible by 6? Give reason. [3 marks]

19. Using the divisibility rule for 7, check whether 336, 916 and 434 are divisible by 7. [5 marks]

20. Check whether 65118 is divisible by 2, 3, 4, 5 and 6. [5 marks]

Key sheet

Q	Answer
1	$0, 1, 2, 3$
2	Odd (remainder 1 when divided by 2)
3	$25, 50, 75, 100, 125, 150, 175, 200$
4	$1, 3, 5, 15, 25, 75$
5	$1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 80, 160$ (12 divisors)
6	Literal
7	$15q$
8	(i) $17q$ (ii) $8q$
9	$r \times r \times r \times r \times r$, read as '$r$ power 5'
10	3364
11	2744
12	(i) 10^8 (ii) 100^4
13	Yes, the unit digit is 4
14	No, the sum of the digits is 31
15	933
16	Yes, the last two digits 84 are divisible by 4
17	Yes, the unit digit is 5
18	No, it is not divisible by 2
19	336 and 434 are divisible by 7; 916 is not.
20	Divisible by $2, 3$ and 6; not by 4, 5

Solutions

1. Write the first four whole numbers. [1]

Whole numbers are the natural numbers along with 0: $0, 1, 2, 3, \ldots$

First four: $0, 1, 2, 3$

Ans: $0, 1, 2, 3$

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2. Is 4161 even or odd? Give reason. [1]

$4161 = 2 \times 2080 + 1$

Remainder is 1, so 4161 is an odd number.

Ans: Odd (remainder 1 when divided by 2)

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3. Write the multiples of 25 that are less than 210. [3]

Multiples of 25: $25 \times 1, 25 \times 2, 25 \times 3, \ldots$

$25 \times 1 = 25$, $25 \times 2 = 50$, $25 \times 3 = 75$, $25 \times 4 = 100$

$25 \times 5 = 125$, $25 \times 6 = 150$, $25 \times 7 = 175$, $25 \times 8 = 200$

$25 \times 9 = 225$ is not less than 210

Multiples of 25 less than 210: $25, 50, 75, 100, 125, 150, 175, 200$

Ans: $25, 50, 75, 100, 125, 150, 175, 200$

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4. Find all the factors of 75 by writing it as a product of two numbers. [2]

$75 = 1 \times 75$

$= 3 \times 25$

$= 5 \times 15$

$\therefore$ Factors of 75 are $1, 3, 5, 15, 25, 75$

Ans: $1, 3, 5, 15, 25, 75$

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5. Find all the factors of 160. How many factors does it have? [5]

$160 = 1 \times 160$

$= 2 \times 80$

$= 4 \times 40$

$= 5 \times 32$

$= 8 \times 20$

$= 10 \times 16$

$3, 6, 7, 9, 11, 12$ do not divide 160 (they leave a remainder).

$\therefore$ Divisors of 160 are $1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 80, 160$

Number of divisors $= 12$

Ans: $1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 80, 160$ **(12 divisors)**

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6. What is another name for a variable? [1]

A symbol which takes various numerical values is called a variable (or) literal.

So another name for a variable is a literal.

Ans: Literal

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7. Write $15 \times q$ in short form. [1]

As $2 \times a = 2a$, a number times a letter is written without the $\times$ sign.

$15 \times q = 15q$

Ans: $15q$

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8. Simplify: (i) $6q + 4q + 7q$ (ii) $25q - 17q$ [2]

(i) $6q + 4q + 7q = (6 + 4 + 7)q = 17q$

(ii) $25q - 17q = (25 - 17)q = 8q$

Ans: (i) $17q$ **(ii)** $8q$

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9. Write r^5 as a product and write how it is read. [2]

$r^5 = r \times r \times r \times r \times r$

Read it as 'r power 5'.

Ans: $r \times r \times r \times r \times r$**, read as '**$r$ **power** 5**'**

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10. Find the value of 58×58. [2]

$58 \times 8 = 464$

$58 \times 5 = 290$, written one place to the left: 2900

$464 + 2900 = 3364$

$\therefore 58 \times 58 = 3364$

Ans: 3364

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11. Find 14^3, showing the steps. [3]

$14^3 = 14 \times 14 \times 14$

$14 \times 14 = 196$, $196 \times 14 = 2744$

$\therefore 14^3 = 2744$

Ans: 2744

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12. Express 100000000 in the exponential form (i) with base 10 (ii) with base 100. [5]

(i) 100000000 is 1 followed by 8 zeros.

$100000000 = 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10^8$

(ii) Divide by 100 again and again:

$100000000 \div 100 = 1000000$, $1000000 \div 100 = 10000$, $10000 \div 100 = 100$

$100000000 = 100 \times 100 \times 100 \times 100 = 100^4$

Ans: (i) 10^8 **(ii)** 100^4

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13. Is 27594 divisible by 2? Give reason. [1]

A number is divisible by 2 if the digit at its unit place is $0, 2, 4, 6$ or 8.

The digit at the unit place of 27594 is 4, so 27594 is divisible by 2.

Ans: Yes, the unit digit is 4

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14. Is 555556 divisible by 3? Give reason. [2]

A number is divisible by 3 if the sum of all its digits is divisible by 3.

Sum of the digits of 555556: $5+5+5+5+5+6=31$

31 is not divisible by 3 ($31=3\times10+1$), so 555556 is not divisible by 3.

Ans: No, the sum of the digits is 31

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15. Find the smallest number greater than 930 that is divisible by 3. [3]

A number is divisible by 3 if the sum of all its digits is divisible by 3.

931: $9+3+1=13$, not divisible by 3

932: $9+3+2=14$, not divisible by 3

933: $9+3+3=15$, divisible by 3

$\therefore$ The smallest number greater than 930 that is divisible by 3 is 933.

Ans: 933

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16. Is 60884 divisible by 4? Give reason. [2]

A number is divisible by 4 if its last two digits together are divisible by 4.

Last two digits of 60884 together: 84; $84=4\times21$, so 60884 is divisible by 4.

Ans: Yes, the last two digits 84 are divisible by 4

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17. Is 94105 divisible by 5? Give reason. [1]

A number is divisible by 5 if the digit at its unit place is 0 or 5.

The digit at the unit place of 94105 is 5, so 94105 is divisible by 5.

Ans: Yes, the unit digit is 5

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18. Is 70245 divisible by 6? Give reason. [3]

A number is divisible by 6 if it is divisible by both 2 and 3.

The digit at the unit place of 70245 is 5, so 70245 is not divisible by 2.

Sum of the digits of 70245: $7+0+2+4+5=18$

18 is divisible by 3 ($18=3\times6$), so 70245 is divisible by 3.

$\therefore$ 70245 is not divisible by 6.

Ans: No, it is not divisible by 2

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19. Using the divisibility rule for 7, check whether 336, 916 and 434 are divisible by 7. [5]

A number is divisible by 7 if the remaining part minus twice the unit digit is a multiple of 7 (or 0).

336: $33-6(2)=33-12=21$; $21=7\times3$, a multiple of 7, so 336 is divisible by 7.

916: $91-6(2)=91-12=79$; $79=7\times11+2$, not a multiple of 7, so 916 is not divisible by 7.

434: $43-4(2)=43-8=35$; $35=7\times5$, a multiple of 7, so 434 is divisible by 7.

Ans: 336 and 434 are divisible by 7; 916 is not.

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20. Check whether 65118 is divisible by 2, 3, 4, 5 and 6. [5]

By 2: The digit at the unit place of 65118 is 8, so 65118 is divisible by 2.

By 3: Sum of the digits of 65118: $6+5+1+1+8=21$; 21 is divisible by 3 ($21=3\times7$), so 65118 is divisible by 3.

By 4: Last two digits of 65118 together: 18; $18=4\times4+2$, so 65118 is not divisible by 4.

By 5: The digit at the unit place of 65118 is 8, so 65118 is not divisible by 5.

By 6: 65118 is divisible by both 2 and 3, so it is divisible by 6.

$\therefore$ 65118 is divisible by $2, 3$ and 6.

Ans: Divisible by $2, 3$ and 6; not by 4, 5