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P5 MATHEMATICS

WEEK FIVE August

LESSON ONE

EXPRESSING MIXED NUMBERS AS IMPROPER FRACTIONS.

Example I

Express $4^2/_3$ as an improper fraction

$$4^2/_3 = \frac{W \times D + N}{D}$$

$$= \frac{4 \times 3 + 2}{3}$$

$$= \frac{12 + 2}{3}$$

$$= {}^{14}/_3$$

Example II

Express $5^1/_4$ as an improper fraction.

$$5^1/_4 = \frac{W \times D + N}{D}$$

$$= \frac{5 \times 4 + 1}{4}$$

$$= \frac{20 + 1}{4}$$

$$= {}^{21}/_4$$

EXERCISE

Express each of these fractions as improper fractions.

1. 1 ½
2. $3\,^1/_{10}$
3. $10^3/_5$
4. $2^7/_8$
5. $5^1/_6$
6. $4^3/_7$

LESSON TWO

REDUCING FRACTIONS

i) To reduce a fraction is to simplify it to its simplest terms.

i)   This is done by dividing the numerator and denominator by their GCF.

Example I

Reduce $^{12}/_{24}$ to its simplest terms.

Using Prime factorization

2	12	24

Example II

Reduce $^{18}/_{30}$ to its simplest form

Using Prime Factorization

2	6	12
3	3	6
	1	2

2	18	30
3	9	15
	3	5

GCF =2 X 2 X3

=12

$$\frac{12 \div 12 = 1}{24 \div 12 \quad 2}$$

GCF = 2 X 3

= 6

$$\underline{18} \div \underline{6} = \underline{3}$$

$$30 \div 6 = 5$$

EXERCISE

1. $^2/_4$
2. $^9/_{10}$
3. $^{20}/_{30}$
4. $^{30}/_{90}$

5. $^8/_{12}$
6. $^5/_{10}$
7. $^{12}/_{18}$

LESSON THREE

ORDERING FRACTIONS

1. To order fractions is to arrange fractions in ascending or descending order.

2. Ascending order means from smallest to biggest/ largest.

3. Descending means from biggest to smallest.

4. We can use the LCM to determine the size of the fraction in natural numbers.

Example I

Arrange $^1/_3$, ½, ¼ in ascending order.

LCM of 3, 2 and 4 = 12 **(Find LCM by prime factorisation using the ladder)**

$^1/_3$ x $\cancel{12}^2$ $^1/_2$, x $\cancel{12}^6$ $^1/_4$ x $\cancel{12}^3$

  1 x 2 = 2   1 x 6 = 6   1 x 3 = 3

Ascending order = ¼, $^1/_3$, ½.

Example II

Arrange $^7/_{12}$, $^3/_8$, $^5/_8$ in descending order.

LCM of 12 and 8 = 24 **(Find LCM by prime factorisation using the ladder)**

$^7/_{12}$ x $\cancel{24}$ ^{2} $^3/_8$, x $\cancel{24}$ ^{3} $^5/_8$ x $\cancel{24}$ ^{3}

  7 x 2 = 14   3 x 3 = 9   5 x 3 = 15

Descending order = $^5/_8$, $^7/_{12}$, $^3/_8$

EXERCISE

Arrange the following fractions as instructed in brackets

1. $^3/_4$, $^2/_3$, $^1/_2$. (ascending)   4. $^5/_6$, $^4/_5$, $^7/_{10}$, $^2/_3$. (descending)

2. $^5/_6$, $^5/_8$, $^5/_{12}$. (ascending)   5. $^3/_4$, $^2/_3$, $^5/_6$. (descending order

3. $^1/_2$, $^1/_3$, $^1/_4$, $^1/_6$. (descending)   6. $^5/_6$, $^4/_5$, $^7/_{10}$, $^2/_3$. (descending)

LESSON FOUR

ADDITION OF FRACTIONS

To add fractions, find the LCM of the denominators of the fractions.

Example I

Add: ¼ + ½ **(Find LCM of 2 and 4 by prime factorisation using the ladder)**

LCM =4

$$= \frac{(4 \div 4 \times 1) + (4 \div 2 \times 1)}{4}$$

$$= \frac{1 \times 1 + 2 \times 1}{4}$$

$$= \quad \underline{\mathbf{3}}$$
$$\quad\quad \mathbf{4}$$

Example II

Add: $^5/_6$ $^+$ $^3/_8$ **(Find LCM of 6 and 8 by prime factorisation using the ladder)**

$$\frac{20 + 9}{24} = \quad \frac{29}{24} \quad \textit{(Change to a mixed number)}$$

$$= 1^5/_{24}$$

EXERCISE

Add the following:

1. $^1/_3$ $^+$ $^1/_2$ 3. $^7/_{10}$ $^+$ $^1/_{20}$

2. $^2/_3$ $^+$ $^1/_2$ 4. $^1/_5$ $^+$ $^1/_2$

5. $^2/_7 + {}^3/_4$ 6. $^2/_9 + {}^1/_6$

LESSON FIVE

ADDITION OF MIXED NUMBERS

Example I   ### Example II

Add: $6\ ^2/_3 + {}^1/_6$ $1^1/_3 + 2^3/_5$

3 + $\frac{5+9}{15}$ LCM of 3 and 6=6   **1+2** $+^1/_3 +{}^3/_5$ LCM of 3 and 5=15

3 $\frac{14}{15}$

EXERCISE

1. $5^1/_4 + 4\ ^2/_3$

2. $3^3/_7 + 4$

3. $2^1/_5 + 1^2/_3$

4. $4\ ^1/_5 + 3^1/_2$

5. $2\ ^3/_4 + 4^1/_8$

6. $3^5/_9 + 5^1/_3$