MG- 3

Name : __

Std. : ____ Roll No. : ____ Date : _____

GEOMETRIC CONSTRUCTION - 3

Learning Focus: - Identifying the Parts of a Triangle

- Construction of a Triangle when the measures of the three Sides are given.

(This worksheet relates to Lesson 1 of your Math textbook)

Octy wants you to look at the Triangles in the pictures.Then, fill in the boxes in the Table. - See the example.

Name of the TriangleNames of the Sides
of the TriangleNames of the Angles
of the Triangle \triangle JOYJO \angle JOYI

AIM: To construct a triangle when its three sides are given.

II.A. – Look at the following example and follow the **Steps** carefully.

Draw \triangle CRM such that ℓ (CR) = 4 cm, ℓ (CM) = 3cm and ℓ (RM) = 3.2 cm.



Construction:

PREPARATION:

Draw a rough diagram of the triangle and write the measures of its sides.

STEP I:

Using a ruler, draw seg CR of length 4 cm.

<u>STEP II</u>:

Place your compass on point C, and draw an arc with radius 3 cm.

STEP III:

Place your compass on point R, and draw another arc with radius 3.2 cm. Name the point of intersection of the 2 arcs, M.

STEP IV:

Using your ruler, draw seg CM and seg RM. [<u>Note</u>: *Either of the 2 arcs can be drawn first, but be careful to take the correct measurement of each arc.*]

MA	THEM	ATICS	LEVEL -	· VII

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II.B. – Now, Octy wants you to follow the example given in Ex. II.A. to draw the Triangles below, with the given measures of their three sides.

(a) Draw \triangle SAT such that ℓ (SA) = 8 cm, ℓ (AT) = 5.5cm and ℓ (ST) = 7 cm.

I have discovered that the triangle that I have constructed is

(a right-angled triangle/ an acute-angled triangle)_____

(b) Draw \triangle CMY such that ℓ (CM) = 5 cm, ℓ (MY) = 4 cm and ℓ (CY) = 3cm.

I have discovered that the triangle that I have constructed is

(a right-angled triangle/ an acute-angled triangle)_



sides and the included angle.

Draw \triangle EMS such that ℓ (EM) = 5.5 cm, ℓ (ES) = 6.4cm and $m \angle$ SEM= 40°.

AIM: To construct a triangle when the measures of its two Angles and the included Side are given.

II.A. - Octy wants you to look at the following example and follow the **Steps** carefully.



II.B. – Now, follow the Example given in Ex. II.A. to draw a Triangle below, with the given measures of its two Angles and the included Side.

(a) Draw \triangle ADG such that ℓ (AD) = 8.5 cm, $m \angle$ GAD = 50°. and $m \angle$ ADG = 45°.

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Name :		Std. : Roll No. : Date :	
$-\bigcirc$	OPERATION	NS ON RATIONAL NUMBERS - 3	\bigcirc
	Learning Focus: -	Using BODMAS for simplification of expressions	No.
PARISAR ASHA	(This worksheet r	elates to Lesson 5 of your Maths textbook.)	C C D
I.A Observe h	now the example is so	lved.	
		1	

Example :		
$5 \times (4 + 2) + \frac{1}{2} \text{ of } 10 - 8 \div 2$	1)	Brackets : Work out the operation within the brackets.
$= 5 \times 6 + \frac{1}{2} \text{ of } 10 - 8 \div 2$	2)	Of : Work out $\frac{1}{2}$ of 10
$= 5 \times 6 + 5 - 8 \div 2$	3)	Division : Work that out.
$= 5 \times 6 + 5 - 4$	4)	Multiplication : Work it out.
= 30 + 5 - 4	5)	Addition : So, carry out Addition.
= 35 - 4	6)	Subtraction : Now, Subtract.
= 31		
Ans. 31		

If we follow this sequence of operations, we can simplify expressions easily and correctly. This is called the BODMAS Rule.

В	0	D	М	А	S
Complete the operation in the brackets ()	Work out the ' of ' using multiplication 'X'	Work out the division operation	Work out the multiplication operation X	Work out the addition operation ♣	Work out the subtraction operation

With the help of the above example, simplify the following expressions. **Remember if there are no Brackets, start with Division**.

Simplify: (a) 6 + (14 - 2) ÷ 3 x 8	Simplify: (b) 6 x 20 ÷ 4 + 9 - 7
Ans	Ans

MATHEMATICS LEVEL - VII

Operations On Rational Numbers - 3

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II. A. - An expression may have different kinds of brackets. To help you to simplify such an expression using the BODMAS Rule, follow the rules given beside the example.

Simplify: 37 – [5 + {28 – (19 – 7)}]

Solution: $37 - [5 + \{28 - (19 - 7)\}]$ $= 37 - [5 + \{28 - 12\}]$ Step I: First remove the innermost brackets '()'= 37 - [5 + 16]Step II: Then remove the braces or curly brackets '{ }'= 37 - 21Step III: Lastly, remove the square brackets '[]'

= 16

II. B. - Now, solve the following simplification problems given below.



MATHEMATIC	S LEVEL - VII				MG - 18
Name :		Std. :	Roll No. :	Date :	
		INDICES - 1			
Seo.	Learning Focus: - Under of an - Multip a ^m x a	rstanding the conce indexed number blication of indices v ⁿ = a ^{m+n}	pts of Base and Inc	lex :	
	(This worksheet relat	es to Lesson 6 of you	r Maths textbook.)		

I. Complete the following Table by filling in each blank with the required number. See the examples.

	Mathematical Expression	Base	Index or Power	Product Form	Value
a)	3 ²	3	2	3 x 3	9
b)	64	6	4	6 x 6 x 6 x 6	1296
C)	7 ³				
d)	10 ⁵				

II.A. You have learnt that expressions with Indices can be read in three ways. Use this knowledge to fill in the blanks with the correct numbers. See the example.

	Mathematical Expression	Can be Read As:	Or:	Or:
a)	95	<u>9</u> raised to <u>5</u>	<u>9</u> to the power <u>5</u>	<u>5th power of 9</u>
b)	47	raised to	to the power	power of
c)	8 ¹²	raised to	to the power	power of

II.B. To show how well you have learnt the meaning and value of rational numbers in index form, fill in the blanks in the Table with the correct numbers.

	Mathematical Expression	Base	Index or Power	Product Form	Can be Read As:
a)	$\left(\frac{1}{5}\right)^3$	$\frac{1}{5}$	3	$\frac{1}{5} \times \frac{1}{5} \times \frac{1}{5}$	<u>3rd</u> power of
b)	$\left(\frac{3}{7}\right)^5$	$\frac{3}{7}$		$\frac{3}{7} \times \frac{3}{7} \times \frac{3}{7} \times \frac{3}{7} \times \frac{3}{7} \times \frac{3}{7}$	power of $\frac{3}{7}$
c)				$\frac{6}{11} \times \frac{6}{11} \times \frac{6}{11} \times \frac{6}{11}$	4 th power of $\frac{6}{11}$
d)	$\left(\frac{10}{21}\right)^2$				power of

MATHEMATICS LEVEL - VII

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III.A. Look carefully at the examples given below. They will help you **discover** the **rule** to be followed when you **multiply** two expressions with indices , when the **base is the same**.



Fill in the blanks in the answer to the question by using the correct words from those given within brackets.

Qn. What have the above examples helped you discover?

Ans. The above examples have helped me to discover that when multiplying numbers having the same base, the **base** of the product (**are added/remains the same**)

____and the indices(are added/remains the same)___

_to get the index of the product.

Where the Base (a) is	s a Rational	Nu	mber	and	the Ind	ices	(m and n) are any positive integers,
then:	a ^m	Х	an	=	a ^{m+n}		

III.B. Write the expression given in Column A, in the Product form in Column B. Then, write the proper numbers in the 'boxes' in Column C. See the example.

	'A' Expression	'B' Product Form	'C' Solution
a)	$(-4)^3 \times (-4)^5$	(-4) x (-4)	(-4) +
C)	$\left(\frac{2}{7}\right)^5$ x $\left(\frac{2}{7}\right)^2$		$\left(\frac{2}{7}\right)$ +

III.C. Look carefully at the expression given in Column P. Then, fill in the 'boxes' in Columns Q and R with the correct numbers. - See the example.

	Column 'P'	Column 'Q'	Column 'R'
a)	(3) ⁹ x (3) ⁷	(3) +	(3)
c)	b ¹¹ x b ¹⁴	b	b
d)	$\left(\frac{2}{7}\right)^2 \times \left(\frac{2}{7}\right)^5$	$\frac{2}{7}$ $+$ $-$	$\frac{2}{7}$