PLANNER & TRACKER
FOR RECOVERY ANNUAL TEACHING PLAN (ATP)

MATHEMATICS

GRADE 8 TERM 3

Helping teachers and learners to catch up with learning losses, master new content and acquire skills for the future.

2021

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CONTENTS

ABOUT THE PLANNER AND TRACKER

This 2021 Revised Recovery Curriculum and Assessment Planner and Tracker is provided by the National Education Collaboration Trust (NECT) on behalf of the Department of Basic Education (DBE)! We hope that this programme provides you with additional skills, methodologies and content knowledge that you can use to teach your learners more effectively.

WHAT IS NECT?
In 2012 our government launched the National Development Plan (NDP) to eliminate poverty and reduce inequality by the year 2030. Improving education is an important goal in the NDP which states that 90% of learners will pass Maths, Science and languages with at least 50% by 2030. This is an ambitious goal for the DBE to achieve on its own, so the NECT was established in 2015 to assist in improving education.

The NECT has successfully brought together groups of people interested in education so that we can work collaboratively to improve education. These groups include the teacher unions, businesses, religious groups, trusts, foundations and NGOs.

PURPOSE OF PLANNER AND TRACKER
1) To mediate the amendments of the trimmed and re-organised 2021 Annual Teaching Plan including School-Based Assessments for Mathematics Grade 8.
2) To ensure that meaningful teaching continues during the remaining teaching time as per the school calendar for TERM 3.
3) To assist teachers with guided pacing and sequencing of curriculum content and assessment.
4) To enable teachers to cover the core skills and knowledge in each grade within the available time.
5) To assist teachers with planning for the different forms of assessment.
6) To ensure learners are adequately prepared for the subsequent year/s in terms of skills, knowledge, attitudes and values.

PREAMBLE
It must be emphasized that Term 1 and term 2 content coverage by teachers were impacted by COVID-19. Schools were particularly disrupted by the fact that learners only attended school for 50% of the time and had to endure variations of the rotation system implemented in the schools. Disruption in schools has also meant disruption in different forms of assessment, so it has been hard to fully pin down exactly how much the school closures and transitions in and out of virtual learning have affected students' mathematical learning, but the evidence so far does not bode well.

Curriculum coverage in term 1 and 2, must be viewed and implemented in term 3, in the light of some contextual realities that includes the following:
1) 2020 was an abnormal year in terms of content coverage. Learners have progressed to a higher grade level without learning all the core skills required for that grade.
2) Some learners were not in school for most of 2020 and perhaps part of 2021.
3) Mathematics is almost always formally learned at school. Many of our parents are often less well-equipped to help their children with mathematics, at a time when parent support can be even more crucial to student progress. This means that the burden falls directly on our teachers.

4) Broader stress and trauma related to the pandemic may worsen existing mathematics anxiety in some students, and mathematics anxiety can exacerbate students' other stress while in class.

Awareness of the above challenges and the consequent assumptions that emerge out of it, is crucial for the implementation of the Revised ATPs emphasizing the recovery of skills not yet mastered in mathematics. This Planner and Tracker is in alignment with the theme of recovery of skills not learnt and covers the following:

1) aims to ensure that the critical skills, knowledge, values and attitudes outlined in the ATPs are covered over this time period.
2) Curriculum Reorganisation and Trimming for this term purports to reduce the envisaged curriculum to manageable core content , skills, knowledge, attitudes and values to enhance deep and meaningful learning.
3) Create opportunities through adjusted ATPs to strengthen pre-knowledge, consolidation, revision, and deeper learning.
4) The Planner and Tracker clearly define the core knowledge, skills, attitude to be taught and assessed more specifically to guide and support teachers.
5) It also aligns curriculum content and assessment to the available teaching time. Entrench assessment for learning as a Pedagogical Approach to address the learning losses.
6) Be used as planning tool to inform instruction during the remaining school terms.

ADJUSTED SCHOOL CALENDAR

SCHOOL TERMS	DATES	TEACHING DAYS
Term 1	15 February - 23 April	50(10 weeks)
Term 2	3 May – 9 July	50(10 weeks)
Term 3	**26 July – 01 October**	**50(10 weeks)**
Term 4	11 Oct - 15 Dec	48(10 weeks)

NOTES:
- TEACHING APPROACH in this term assumes that ALL learners are attending schools and the Rotation system may not be implemented meaning that schools may implement normal timetable.
- NECT TERM 3 Planner and Tracker has 48 teaching and learning days (2 public holidays), of which 15 days are used for formative and summative Assessment days.
- NECT Term 3 Planner and Tracker focuses on Deep learning through assessment for learning - There is no time for assessment that does not inform the way forward. Teachers should consolidate, revise and remediate through error analysis that leads to skills mastery.

MANAGING TIME ALLOCATED IN THE TRACKER

- The tracker for each term contains details of work to be covered over 60 lessons per term, six per week for ten weeks.

- The CAPS prescribes **four and a half hours** of Mathematics per week in Grade 8.

- Each school will organise its timetable differently, so the programme of lessons is based on work in the Learner's Book and DBE workbook, which should take just about an hour per day to complete. Perhaps, at end of week 30 minutes – will be great if this is also an hour.

- You might have to divide the sessions in the programme slightly differently to accommodate the length of the lessons at your school.
- Depending on the pace at which your learners work, and how much support is needed,
- you might also have to supplement the set activities by using other resources to ensure that the full four and a half hours allocated to teaching Mathematics is used constructively.
- The breakdown of work to be done each week corresponds to the 'annual teaching plan and programme of assessment' drawn up by the Provincial Department of Education; however, the tracker gives a more detailed outline of what should be taught each day.
- This tracker is designed for a term that is 10 weeks long.
- In most weeks, one lesson is set aside – at the end of the week - for you to catch up on work not done in the previous four lessons, or to provide remedial support or enrichment.
- The formal teaching programme, the project, some revision, and the term test should be completed by the end of Week 10.

REMEMBER: The teacher should employ group teaching based on principles of differentiation – cater for the needs of every learner by making sure every learner masters the fundamental skills in mathematics. The teacher is also mindful to plan well for effective assessment for learning to inform the remediation and teaching, through the skills mastery approach applied in this Planner and Tracker.

LINKS TO THE DBE WORKBOOKS
The tracker gives links to worksheets in the DBE workbooks relevant to the content described for each day. The worksheets are referred to by worksheet number and page number. These workbooks should be used in conjunction with the Learner's Book activities. You should review the suggested worksheets before each lesson and decide how best to use them – for teaching, revision, extension or consolidation, in class or for homework.

TEACHING TIME

Since there are **4 and $\frac{1}{2}$** hours allocated for Mathematics per week, the following is a suggested plan for daily lessons.

WEEK: 4 and $\frac{1}{2}$ hours	
Consolidation of Concepts – skills mastery and other New Concept – class activity	10 min 50 min

CONTENT COVERAGE

TERM 3	Week 1 4 days	Week 2 5 days	Week 3 5 days	Week 4 5 days	Week 5 4 days	Week 6 5 days	Week 7 5 days	Week 8 5 days	Week 9 5 days	Week 10 5 days	Week 11 4 days
Hours per week	3.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	3.5 hrs.	4.5 hrs	4.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	4 hrs
Hours per topic	3.5 hrs.	4.5 hrs.	7 hrs.	2 hrs	3.5 hrs.	4.5 hrs	1 hr. / 3.5 hrs	4.5 hrs.	4.5 hrs.	4.5 hrs.	4 hrs

	ALGEBRAIC EXPRESSIONS	ALGEBRAIC EQUATIONS	GEOMETRY OF STRAIGHT LINES	GEOMETRY OF 2D SHAPES	REVISION	FORMAL ASSESSMENT TASK

Topic, concepts, skills and values	**Expand and simplify algebraic expressions**
	• Use commutative, associative and distributive laws for rational numbers and laws o exponents to:
	• Add and subtract like terms in algebraic expressions
	• Multiply integers and monomials by:
	  – monomials
	  – binomials
	  – trinomials
	• Divide the following by integers or monomials:
	  – monomials
	  – binomials
	  – trinomials
	• Simplify algebraic expressions involving the above operations
	• Determine the squares, cubes, square roots and cube roots of single algebraic terms or like algebraic terms
	• Determine the numerical value of algebraic expressions by substitution
		Equations
		• Use substitution in equations to generate tables of ordered pairs
		• Extend solving equations to include:
		  – using additive and multiplicative inverses
		  – using laws of exponents
			Angle relationships
			• Recognize and describe pairs of angles formed by:
			  – perpendicular lines
			  – intersecting lines
			  – parallel lines cut by a transversal
			
			Solving problems
			• Solve geometric problems using the relationships between pairs of angles described above
				Classifying 2D shapes
				
				• Identify and write clear definitions of triangles in terms of their sides and angles, distinguishing between:
				  – equilateral triangles
				  – isosceles triangles
				  – right-angled triangles
				
				Constructions
				
				PROVIDE LEARNERS WITH ACCURATELY CONSTRUCTED FIGURES TO INVESTIGATE THE PROPERTIES OF TRIANGLES
				
				Investigating properties of geometric figures
				• Investigate the angles in a triangle, focusing on:
				  – the sum of the interior angles of triangles
				  – the size of angles in an equilateral triangle
				  – the sides and base angles of an isosceles triangle
				
				Classifying 2D shapes
				
				• Identify and write clear definitions of quadrilaterals in terms of their sides and angles, distinguishing between:
				  – parallelogram
				  – rectangle
				  – square
				  – rhombus
				  – trapezium
				  – kite
				
				Constructions
				
				PROVIDE LEARNERS WITH ACCURATELY CONSTRUCTED FIGURES TO INVESTIGATE THE PROPERTIES OF QUADRILATERALS
						TEST
						
						All topics

				Investigating properties of geometric figures
				• Investigate sides and angles in quadrilaterals, focusing on:
				  – the sum of the interior angles of quadrilaterals
				  – the sides and opposite angles of parallelograms
				
				Solving problems
				
				• Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.
				
				Similar and congruent 2D shapes
				• Identify and describe the properties of congruent shapes
				• Identify and describe the properties of similar shapes
				
				Solving problems
				• Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.		

Prerequisite skill/ pre-knowledge	• Recognize and interpret rules or relationships represented in symbolic form
	  – Identify variables and constants in given formulae and/or equations
		• Write number sentences to describe problem situations
		• Analyse and interpret number sentences that describe a given situation
		• Solve and complete number sentences by:
		  – inspection
		  – trial and improvement
		• Determine the numerical value of an expression by substitution.
		• Identify variables and constants in given formulae or equations
			• Definitions of:
			  – Line segment
			  – Ray
			  – Straight lines
			  – Parallel lines
			• Perpendicular lines
				• Describe, sort, name and compare triangles according to their sides and angles, focusing on:
				  – equilateral triangles
				  – isosceles triangles
				  – right-angled triangles
				• Describe, sort, name and compare quadrilaterals in terms of:
				  – length of sides
				  – parallel and perpendicular sides
				  – size of angles (right-angles or not)
				• Describe and name parts of a circle
				• Recognize and describe similar and congruent figures by comparing:
				  – shape
				  – size		

CORE QUESTIONS	DID ALL LEARNERS MASTER TERM 1 SKILLS?	DID ALL LEARNERS MASTER TERM 1 AND 2 SKILLS?	NEW CONCEPTS/CONTENT

RECOMMEN-DATION	1. Implement at least two Skills Mastery (SM) formative assessments every week. 2. Consolidation of Concepts – 10 minutes – twice a week apply 5-item SM assessments. 3. Teacher – can use SM as individual, pair, small group, or whole class activity. 4. Aim – to consolidate, remediate and work towards mastery. 5. Record – monitor learners who have learning gaps in the REFLECTION section of the Tracker	NEW CONCEPTS/CONTENT

WEEKLY PLANNER AND TRACKER

RECOMMENDATION

BASELINE TERM 3: Implement DBE Baseline/Diagnostic – or any similar diagnostic – Based on term 1 and term 2 core skills. Meaning teachers can select different items in the diagnostic for their purposes.

WHEN: Day 1, allow learners to complete individually and/or work with ability groups based on your classroom context. Day 2 is set aside for remediation purposes.

NUMBER OF ITEMS: Grade 8 = 15 - 20 items – depending on your context and ability groups

ITEM BANK: Items can also be drawn from previous:

1) BASELINE/READINESS assessment, 2) Assessment Resources in this TRACKER or 3) the DBE Item Bank and 4) Textbooks

26 – 30 July 2021

Week 1					
Lesson	ATP Content	concepts, skills	DBE workbook	Reso urces	Date
1		Baseline: (Revision, consolidation of term 1 and 2 skills)			
2		Baseline: Remediation – error analysis			
3	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions: Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions	Input and output values using expressions and equations Solving for two variables using table method	Bk 1 No. R7 (pp. xx – xxi) No. 28 (pp. 60 – 61)		
4	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions: Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions	using variable and constants with different operations Describe number sentences in words Applying rules to complete tables	Bk 1 No. 8a (pp. xxii – xxiii) No. 8b (pp. 24 – 25)		
5	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions: Use commutative, associative and	clarifying expression vs equation and solving for x Solve for x using substitution.	Bk 1 No 29a (pp. 62 – 63) No 29b (pp. 64 –		

	distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions	Know algebraic vocabulary.	65)		

Notes for the teacher.

1. The Baseline Assessment can be administered one-on one or to a group of at least 5 learners at a time – it is an assessment FOR learning.
2. The onus is on the teacher to prepare substantial activities for the rest of the learners while the Baseline Assessment is being administered.
3. Prepare well - study the Baseline Assessment i.e. familiarise yourself with the apparatus and templates that must be used.

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Solve input/output models with all operations • Use variables with different operations • Use constants with different operations • Distinguish between expressions and equations • To solve for x with different operations	What will you change next time? Why?
	Struggling Learners Names:
	HOD: **Date:**

2 – 6 AUGUST 2021

Week 2					
Lesson	ATP Content	concepts, skills	DBE workbook	Reso urces	Dat e
6	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions: Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions	Adding and subtracting like terms Using laws of exponents to add/subtract like terms	Bk 1 No. 30 (pp 64 - 65		
7	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions: Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions	Adding and subtracting like terms Using laws of exponents to add/subtract like terms	Bk 1 No. 31 (pp. 68)		
8	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions Multiply integers and monomials by: – monomials – binomials – trinomials Divide the following by integers or monomials: – monomials – binomials – trinomials Simplify algebraic expressions involving	Using laws of exponents to multiply/divide like terms Write algebraic expressions or equations from word sentences – problem-solving	Bk 1 No. 31 (pp. 69)		

	the above operations				
9	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions Multiply integers and monomials by: – monomials – binomials – trinomials Divide the following by integers or monomials: – monomials – binomials – trinomials Simplify algebraic expressions involving the above operations	Using laws of exponents to multiply/divide like terms Write algebraic expressions or equations from word sentences – problem-solving	Bk 1 No. 32 (pp. 70 – 71)		
10	Assessment Activity: Consolidate and revise – assess learners understanding, remediate for understanding – use SM Activities				

Reflection

DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Know the meaning of power and base of power • Know the meaning of operator • Know the meaning of constant and variable • Know the meaning of coefficient • Write expressions using terms • Group like terms with whole numbers • Group like terms with integers • Write number sentences	What will you change next time? Why? **Struggling Learners Names?**
	HOD: **Date:**

10 – 13 August 2021 - 4-day week (skip the assessment activity at end of the week)

Week 3					
Lesson	**ATP content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
11	ALGEBRAIC EQUATIONS: Equations: Use substitution in equations to generate tables of ordered pairs Extend solving equations to include: – using additive and multiplicative inverses – using laws of exponents	Set up algebraic equations. Use keyword, relationship and number sentence approach	Bk 1 No. 33 (pp. 72 – 73)		
12	ALGEBRAIC EQUATIONS: Equations: Use substitution in equations to generate tables of ordered pairs Extend solving equations to include: – using additive and multiplicative inverses – using laws of exponents	Use additive inverse and reciprocals	Bk 1 No. 34 (pp. 74 – 75)		
13	ALGEBRAIC EQUATIONS: Equations: Use substitution in equations to generate tables of ordered pairs Extend solving equations to include:	Use balance an equation approach to solve.	Bk 1 No. 35 (pp. 76 – 77) Bk 2		

			No. 111 (pp. 128 – 129)		
14	ALGEBRAIC EQUATIONS: Equations: Use substitution in equations to generate tables of ordered pairs Extend solving equations to include: – using additive and multiplicative inverses – using laws of exponents	Using substitution to simply expressions and solve equations	Bk 1 No. 36a (pp. 78 - 79) No. 36b (pp. 80 – 81)		
15	Assessment Activity – can be cancelled because of four-day week				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Write algebraic equations from given info • Identify additive inverses • Identify reciprocals • Balance the side of an equation • Simplify expressions using substitution • Solve equations using substitution	What will you change next time? Why? **Struggling Learners names:** **HOD:** **Date:**

16 – 20 August 2021

Week 4					
Day	**ATP Content**	**CAPS content, concepts, skills**	**DBE workbook**	**Reso urces**	**Date**
16	ALGEBRAIC EQUATIONS: Equations: Use substitution in equations to generate tables of ordered pairs Extend solving equations to include: – using additive and multiplicative inverses – using laws of exponents	Solving for x and testing solutions. Solving worded problems	Bk 1 No. 37 (pp.82 – 83) No. 38 (pp. 84 – 85)		
17	ALGEBRAIC EXPRESSIONS Multiply integers and monomials by: – monomials – binomials – trinomials Divide the following by integers or monomials: – monomials – binomials – trinomials Simplify algebraic expressions involving the above operations	Divide monomials, binomials and trinomials by integers or monomials – simply expressions	Bk 1 No. 39 (pp. 86 – 87)		
18	ALGEBRAIC EXPRESSIONS Multiply integers and monomials by: – monomials – binomials – trinomials Divide the following by integers or monomials: – monomials – binomials – trinomials Simplify algebraic expressions involving the above operations	Simplify algebraic expressions – using distributive laws	Bk 1 No. 40 (pp. 88 – 89)		

19	ALGEBRAIC EXPRESSIONS Determine the squares, cubes, square roots and cube roots of single algebraic terms or like algebraic terms Determine the numerical value of algebraic expressions by substitution	Calculate square numbers, cube numbers and square roots	Bk 1 No.41 (pp. 90 – 91)		
20	Assessment Activity: Consolidate and revise – assess learners understanding, remediate for understanding – use SM Activities				
Reflection					

DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Solve equations and test solutions • Divide by monomial expression using integers • Divide by binomial expression using integers • Divide by trinomial expression using integers • Simplifying expressions using distributive property • Calculate square numbers • Calculate cube numbers • Calculate square roots	What will you change next time? Why? **Struggling Learners Names**:
	HOD:　　　　　　　　**Date:**

23 – 27 AUGUST 2021

Week 5					
Day	**ATP Content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
21	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions Multiply integers and monomials by: – monomials – binomials – trinomials Divide the following by integers or monomials: – monomials – binomials – trinomials Simplify algebraic expressions involving the above operations	Simplifying using multiple operations- rational numbers	Bk 1 No. 42 (pp. 92 – 93) No. 43 (pp. 94 – 95)		
22	ALGEBRAIC EXPRESSIONS Expand and simplify algebraic expressions Use commutative, associative and distributive laws for rational numbers and laws of exponents to: Add and subtract like terms in algebraic expressions Multiply integers and monomials by: – monomials – binomials – trinomials Divide the following by integers or monomials:	Simplifying using division operators	Bk 1 No. 44 (pp – 96 – 97)		

	– monomials – binomials – trinomials Simplify algebraic expressions involving the above operations			
23	GEOMETRY OF STRAIGHT LINES Angle relationships: Recognize and describe pairs of angles formed by:– perpendicular lines – intersecting lines– parallel lines cut by a transversal Solving problems: Solve geometric problems using the relationships between pairs of angles described above	revising geometric symbols and figures,	Bk 1 No. 11a (pp.xxx – xxxi) No. 47 (pp. 104 – 105)	
24	GEOMETRY OF STRAIGHT LINES Angle relationships: Recognize and describe pairs of angles formed by:– perpendicular lines – intersecting lines– parallel lines cut by a transversal Solving problems: Solve geometric problems using the relationships between pairs of angles described above	Parallel and perpendicular lines: Identifying and constructing	Bk 1 No. 61 (pp. 140 – 141)	
25	Complete and consolidate the week's assessment and work. **FORMAL ASSESSMENT - PROJECT**			

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Simplifying by using rational numbers • Simplifying using division operators • Measure angles using a protractor • Draw figures using compasses	What will you change next time? Why? **Struggling Learner names:**
	HOD: Date:

30 AUGUST to 3 SEPTEMBER 2021

Week 6					
Less	ATP Content	concepts, skills	DBE workbook	Reso urces	Date
26	GEOMETRY OF STRAIGHT LINES Angle relationships: Recognize and describe pairs of angles formed by:– perpendicular lines – intersecting lines– parallel lines cut by a transversal Solving problems: Solve geometric problems using the relationships between pairs of angles described above	Working with parallel lines and perpendicular lines. Apply pairs of angles relationships.	Bk 1 No. 62 (pp. 142 – 143) No. 63 (pp. 144 – 145)		

27	GEOMETRY OF 2D SHAPES Classifying 2D shapes: Identify and write clear definitions of triangles in terms of their sides and angles, distinguishing between:– equilateral triangles– isosceles triangles– right-angled triangles	angles and triangles to identify and name equilateral, isosceles and right-angled triangle	Bk 1 No. 48a (pp. 106 – 107)		
28	GEOMETRY OF 2D SHAPES Investigating properties of geometric figures Investigate the angles in a triangle, focusing on: – the sum of the interior angles of triangles – the size of angles in an equilateral triangle – the sides and base angles of an isosceles triangle	investigate properties of triangles	Bk 1 No. 49 (pp. 110 – 111)		
29	GEOMETRY OF 2D SHAPES Classifying 2D shapes Identify and write clear definitions of quadrilaterals in terms of their sides and angles, distinguishing between: – parallelogram– rectangle– square – rhombus– trapezium– kite	Identifying and classifying quadrilaterals	Bk 1 No. 50a (pp. 112 – 113) No. 50b (pp. 114 – 115)		
30	Assessment activity: Catch-up on work not completed; remediation of concepts which some learners have not fully understood and enrichment cards for the learners who are on track				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Construct parallel lines • Construct perpendicular lines • Construct different angles • Construct different triangles • Investigating the property of sum of angles of triangle • Construct different quadrilaterals	What will you change next time? Why? **Struggling Learners Names:**
	HOD: Date:

6 – 10 SEPTEMBER 2021

Week 7					
Day	ATP Content	concepts, skills	DBE workbook	Reso urces	Date
31	GEOMETRY OF 2D SHAPES Classifying 2D shapes: Identify and write clear definitions of triangles in terms of their sides and angles, distinguishing between:– equilateral triangles– isosceles triangles– right-angled triangles	Identifying polygons according to sides and angles	Bk 1 No. 52 (pp. 118 – 119)		
32	GEOMETRY OF 2D SHAPES Classifying 2D shapes	Identifying polygons according to sides and angles	Bk 1 No 53 (pp. 120 – 121)		

Day	ATP content	concepts, skills	DBE workbook	Resources	Date
	Identify and write clear definitions of quadrilaterals in terms of their sides and angles, distinguishing between: – parallelogram– rectangle– square – rhombus– trapezium– kite				
33	GEOMETRY OF 2D SHAPES Similar and congruent 2D shapes Identify and describe the properties of congruent shapes Identify and describe the properties of similar shapes Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Find ratios of sides	Bk 1 No. 54 (pp. 122 – 123)		
34	GEOMETRY OF 2D SHAPES Similar and congruent 2D shapes Identify and describe the properties of congruent shapes Identify and describe the properties of similar shapes Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Congruent triangles – drawing and comparing triangles to obtain cases of congruency	Bk 1 No. 55a (pp. 124)		
35	Assessment Activity: Consolidate and revise – assess learners fraction understanding, remediate for understanding – use SM Activities				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Identify polygons according to sides • Identify polygons according to angles • Identify similar triangles according to angles • Identify similar triangles according to sides • Draw congruent triangles • Identify the cases of congruency	What will you change next time? Why? **Struggling Learners Names:** HOD: Date:

13 – 17 SEPTEMBER 2021

Week 8					
Day	ATP content	concepts, skills	DBE workbook	Resources	Date
36	GEOMETRY OF 2D SHAPES Similar and congruent 2D shapes Identify and describe the properties of congruent shapes Identify and describe the properties of similar shapes Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals,	Congruent triangles – drawing and comparing triangles to obtain cases of congruency	Bk 1 No. 55a (pp. 125)		

		using known properties and definitions.				
37	GEOMETRY OF 2D SHAPES Similar and congruent 2D shapes Identify and describe the properties of congruent shapes Identify and describe the properties of similar shapes Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Congruent triangles – drawing and comparing triangles to obtain cases of congruency	Bk 1 No. 55b (pp. 126 – 127)		
38	GEOMETRY OF 2D SHAPES Similar and congruent 2D shapes Identify and describe the properties of congruent shapes Identify and describe the properties of similar shapes Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Similar triangle problems in different contexts	Bk 1 No. 56 (pp. 128 – 129)		
39	GEOMETRY OF 2D SHAPES Investigating properties of geometric figures Investigate sides and angles in quadrilaterals, focusing on: – the sum of the interior angles of quadrilaterals – the sides and opposite angles of parallelograms Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Classifying and exploring shapes and identifying figures	Bk 1 No. 57 (pp. 130 – 131)		
40	Complete and consolidate the week's assessment and work				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Solve similar triangle problems • Classify quadrilaterals by sides • Classify triangles by sides and angles • Investigate the role of a diagonal in figures • Investigate properties of figures through practical activities	What will you change next time? Why? Struggling Learners Names:
	HOD: Date:

20 -23 SEPTEMBER 2021- 4-DAY WEEK THEREFORE NO ASSESSMENT

Week 9				
Day	ATP content	concepts, skills	DBE workbook	Resources	Date

41	GEOMETRY OF 2D SHAPES Investigating properties of geometric figures Investigate sides and angles in quadrilaterals, focusing on: – the sum of the interior angles of quadrilaterals – the sides and opposite angles of parallelograms Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Classifying and exploring shapes and identifying figures	Bk 1 No. 58 (pp. 132 – 133)		
42	GEOMETRY OF 2D SHAPES Investigating properties of geometric figures Investigate sides and angles in quadrilaterals, focusing on: – the sum of the interior angles of quadrilaterals – the sides and opposite angles of parallelograms Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Explore the role of diagonals in figures	Bk 1 No. 59 (pp.134 – 135)		
43	GEOMETRY OF 2D SHAPES Investigating properties of geometric figures Investigate sides and angles in quadrilaterals, focusing on: – the sum of the interior angles of quadrilaterals – the sides and opposite angles of parallelograms Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Practical activities to investigate properties of quadrilaterals, angles and diagrams	Bk 1 No. 60a (pp. 136 – 137)		
44	GEOMETRY OF 2D SHAPES Investigating properties of geometric figures Investigate sides and angles in quadrilaterals, focusing on: – the sum of the interior angles of quadrilaterals – the sides and opposite angles of parallelograms Solving problems: Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions.	Practical activities to investigate properties of quadrilaterals, angles and diagrams	No. 60b (pp. 138 – 139)		
45	Assessment Activity: Consolidate and revise – assess learners understanding, remediate for understanding – use SM Activities				
Reflection					

DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Investigate properties of quadrilaterals through practical examples • Apply properties of parallel lines in real examples • Identify and name alternate angles • Identify and name corresponding angles • Solve problems using constructions	What will you change next time? Why?
	HOD: **Date:**

27 SEPTEMBER – 1 OCTOBER 2021

Week 10					
Day	**ATP content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
46	Teacher selects content	Revision and consolidation (Skills mastery activities)			
47		FORMAL ASSESSMENT TASK: TEST – All topics			
48	Teacher selects content	Revision and consolidation (Skills mastery activities)			
49	Teacher selects content	Revision and consolidation (Skills mastery activities)			
50	Complete and consolidate the week's assessment and work				
Reflection					
Identify some skills that need revising during the next term:		What will you change next time? Why? **Struggling Learners Names:**			

ASSESSMENT RATIONALE AND RESOURCES

Assessment Term Plan

The assessment term plan gives an overview of
1) how the formal and informal assessment programme fits into the weekly lesson plans.
2) How the skills mastery assessments fit into the weekly lesson plans

Note:
- There are two FORMAL Assessment tasks: 1) Project and 2) Test
- The Skills mastery assessments – aimed at consolidating, revising and remediating skills already covered this year - are added at the end of the document.

Week	Informal Assessment (End of week) and Skills Mastery Activities (Tuesdays and Thursdays)	Formal Assessment Activities (End of week) – 2 FORMAL ASSESSMENTS: 1) Project 2) Test
1	Baseline Assessment	Baseline Assessment
2	**Tuesday** Skills mastery Assessment 1 **Thursday** Skills mastery Assessment 2	
3	No Informal Assessment – 4-day week **Tuesday** Skills mastery Assessment 3 **Thursday** Skills mastery Assessment 4	
4	**Tuesday** Skills mastery Assessment 5 **Thursday** Skills mastery Assessment 6	
5	**Tuesday** Skills mastery Assessment 7 **Thursday** Skills mastery Assessment 8	**Formal Assessment 1 - Project**
6	**Tuesday** Skills mastery Assessment 9 **Thursday** Skills mastery Assessment 10	
7	**Tuesday** Skills mastery Assessment 11 **Thursday** Skills mastery Assessment 12	
8	**Tuesday** Skills mastery Assessment 13 **Thursday** Skills mastery Assessment 14	
9	No Assessment – 4-day week **Tuesday** Skills mastery Assessment 15 **Thursday** Skills mastery Assessment 16	
10	**Tuesday** Skills mastery Assessment 17 **Thursday** Skills mastery Assessment 18	**FORMAL ASSESSMENT 2 – Test (All Topics)**

SKILLS MASTERY ASSESSMENTS

Rationale

- A Skills Mastery Assessment (SMA) is one in which there is an iterative revisiting of skills, topics, subjects or themes throughout the year.
- SMA is not simply the repetition of a topic taught. It requires the deepening of it, with each successive encounter building on the previous one.
- SMA is critical in today's educational environment, especially in mathematics, where we must consistently give our learners the opportunity to revisit and practice skills they have already learned aimed at mastery.
- The traditional practice is to incorporate consolidating, revising or reviewing, through homework, morning work, small group instruction, and even after school math classes. Through SMA we are going to continuously review skills and concepts with our students.
- It makes sense that we would continue to assess their understanding on those same skills by changing the context of the question using C-P-A-W (Concrete – Pictorial – Abstract -Worded)
- When we first teach and assess a skill, many of our students have yet to master it.   By incorporating a SMA activity into your classroom, you are providing your students with the opportunity to demonstrate their growth and understanding on a regular basis.
- These regular SMAs help you see where your students are always struggling. You can use the results to guide your small group instruction and customize your lessons and activities to meet the needs of your students, not just the covering of curriculum.

Implementation

- In every lesson plan there are 10 minutes set aside for consolidation and revision, meaning one could apply SMA every day for 10 minutes, before teaching a new concept for that day.
- Each SMA is using a five-item design to ensure teachers can complete it in 10 minutes.
- As a minimum, this Planner and Tracker, recommends the use of Tuesdays and Fridays, but teachers could use every day.
- Each Tuesday and Thursday you are encouraged to take 10 minutes and give a SMA to the whole class, or groups. Learners should be able to take about 5 minutes to complete – then the teacher must remediate by addressing errors, misconceptions and misunderstandings.
- Teachers could also use the data from the SMA to help plan small group lessons for the next week.
- Teachers could also pull different students for different skills until the teacher felt confident that the learners were more confident in their responses. Then next week, repeat….new set of SMAs, similar skills being assessed, new data for small group instruction.
- These daily SMAs should be seen as a progress monitoring tool as well. This will prove to be effective in letting teachers know how their most struggling students are progressing.

SKILLS MASTERY SKILLS PER 5 – ITEM ASSESSMENT

SM Assessment 1	Square roots of perfect squares
	Estimate square roots
	Equivalent fractions

	Evaluate one-variable expressions
SM Assessment 2	**Add and subtract fractions**
	Add and subtract mixed numbers
	Inequalities with addition and subtraction of fractions and mixed numbers
	Evaluate multi-variable expressions
SM Assessment 3	**Find the next shape in a repeating pattern**
	Complete a repeating pattern
	Make a repeating pattern
	Write and solve equations that represent diagrams
	Does (x, y) satisfy the linear function?
	Identify independent and dependent variables
SM Assessment 4	**Round off to two decimal places. Calculate the Area.**
	Convert between standard and scientific notation
	Compare numbers written in scientific notation
	Distinguish between what an acute/an obtuse angle is
	Find value of a
SM Assessment 5	**HCF and LCM: word problems**
	Use Venn diagrams to solve problems
	Adding and subtracting number sentences
	Simplify variable expressions using properties
SM Assessment 6	**Identify the number of terms in the expression.**
	Probability of simple events
	Probability of opposite, mutually exclusive and overlapping events
	Experimental probability
	Solve for x
	Sum and differences
SM Assessment 7	**Expanded notation**
	Solve for x
	Identify monomials
	Model polynomials with algebra tiles
	Identify independent and dependent variables
	Rate of change
SM Assessment 8	**Interpret graphs of proportional relationships**
	Write and solve equations for proportional relationships
	Square and cube roots of monomials
	Find the area of a rectangle
SM Assessment 9	**Find the next shape in a repeating pattern**
	Complete a repeating pattern
	Make a repeating pattern
	Add and subtract polynomials
	Find a radius of a circle
	Interior angles of polygons
	Estimate angle measurements
SM Assessment 10	**Volume and surface area of similar solids**
	Capacity
	Tally/Frequency
	Problem solving
	How many terms in the expression?
SM Assessment 11	**Divide whole numbers by unit fractions using models**
	Convert between standard and scientific notation
	Compare numbers written in scientific notation

	Interpret line plots
SM Assessment 12	**Write in expanded notation: Decimals** **Write the place value of 7-digit numbers** **Round off to the nearest 10** **Decimal fractions**
SM Assessment 13	**Expanded notation** **Place Value** **Addition by making use of expanded notation method** **Pythagoras' theorem: find the perimeter** **Pythagoras' theorem: word problems** **Converse of Pythagoras' theorem: is it a right triangle?**
SM Assessment 14	**Area of a triangle** **Dividing monomials** **Calculate the height and area of a triangle** **Volume** **Constant difference between consecutive terms**
SM Assessment 15	**Interpret histograms** **Calculate mean, median, mode and range**
SM Assessment 16	**Patterns and sequences** **Find the next shape in a repeating pattern** **Complete a repeating pattern** **Right-angled triangles** **Find missing angles**
SM Assessment 17	**Add and subtract like terms** **Add, subtract and multiply linear expressions** **Interpret line graphs** **Factors**
SM Assessment 18	**Money: Calculate percentages** **Choose the best type of graph** **Identify the constant terms.** **Triangles that are congruent** **Perimeter**
SM Assessment 19	**Fractions: Divide and multiply** **Probability of simple events** **Probability of opposite, mutually exclusive and overlapping events** **Interior angles of polygons** **Identify complementary, supplementary, vertical, adjacent and congruent angles** **Transversal of parallel lines**
SM Assessment 20	**Fill in the missing numbers in a pattern.** **Diameter of a circle** **Pie chart** **Factors** **Solids**

SKILLS MASTERY EXEMPLARS

Skills Mastery (SM) Assessment 1

Number	Assessment
1.	Calculate $\sqrt[3]{125} + \sqrt{81}$
	A. 2 B. 16 C. 14 D. 164
2.	Simplify. $-3 + 8 - 1 - 7 + 12 + 1$

3.

Example: $-3x - 2 = 10$
$-3x - 2 + 2 = 10 + 2$
$\frac{-3x}{-3} = \frac{-12}{-3}$
$x = -4$

a. $-2x - 5 = 15$

4. Revision: say whether it is a proper or improper fraction, or a mixed number.

$\frac{2}{4}$ [   ]   b. $\frac{6}{2}$ [   ]   c. $1\frac{1}{4}$ [   ]

5.

Write an equivalent fraction for:

$1\frac{1}{2}$ [   ]   b. $3\frac{2}{3}$ [   ]   c. $4\frac{1}{2}$ [   ]

SM Assessment 2

Number	Assessment

1.

Examples: $\_\_ \times \_\_ = \frac{9}{12}$ $\frac{1}{3} \times \frac{9}{4} = \frac{9}{12}$ $\frac{3}{2} \times \frac{3}{6} = \frac{9}{12}$
$\frac{3}{3} \times \frac{3}{4} = \frac{9}{12}$

a. $\_\_ \times \_\_ = \frac{4}{7}$ b. $\_\_ \times \_\_ = \frac{8}{14}$ c. $\_\_ \times \_\_ = \frac{4}{8}$

[   ]   [   ]   [   ]

2.

Example: $2 \div \frac{3}{4}$
$= \frac{7}{4} \times \frac{4}{3}$
$= \frac{8}{3}$
$= 2\frac{2}{3}$

a. $4 \div \frac{4}{5} =$ b. $7 \div \frac{7}{9} =$

[   ]   [   ]

3.

a. $(\frac{1}{4})^2$

[   ]

Work through examples 1–4 and discuss them.

1. $(\frac{3}{4})^2 = \frac{3^2}{4^2} = \frac{9}{16}$ 2. $(\frac{3}{4})^3 = \frac{3^3}{4^3} = \frac{27}{64}$

3. $\sqrt{\frac{16}{25}} = \frac{\sqrt{16}}{\sqrt{25}} = \frac{4}{5}$ 4. $\sqrt[3]{\frac{8}{27}} = \frac{\sqrt[3]{8}}{\sqrt[3]{27}} = \frac{2}{3}$

4. $2x(3x+1) - x(x+3)$

5. $\dfrac{6x^3 + 2x^2 + 4x}{2x}$

Number	Assessment
1.	Study the patterns below and answer the questions that follow.
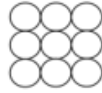
Pattern 1   Pattern 2   Pattern 3

Write down the first five numbers in the sequence.

2.   Aisha is three years older than Mpho. Together their ages add up to 17 years. How old is Aisha.

3.   Study the flow diagram and answer the questions that follow.

Input Values   **Output Values**

-2   a

-1   b

$2x+3$

0   c

1   d
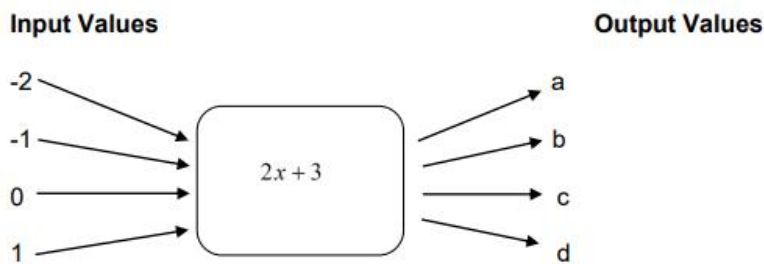
4.   Calculate the value of x,y and z in the diagram below. Provide reasons for your answers.

40^0 60   z   x   y
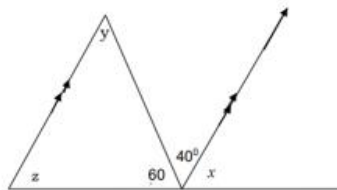
5.   A is a transformed object to image A^i. Mention two types of transformation that took place.

A   A^i
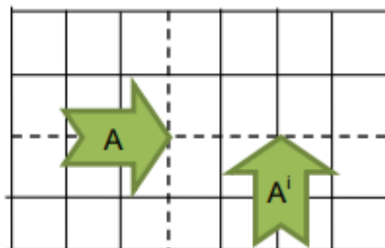
Number	Assessment
1.	Calculate the area of the shaded region. Round off your answer to two decimal places.

12cm

12cm
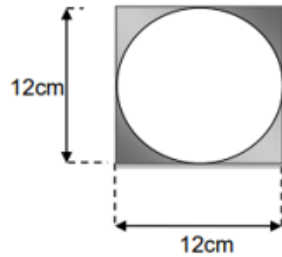
2. Write 0,00045 in scientific notation

A. 45×10^{-4} B. $4,5 \times 10^{4}$ C. $4,5 \times 10^{-5}$ D. $4,5 \times 10^{-4}$

3.

$\hat{C}$ is ... angle.
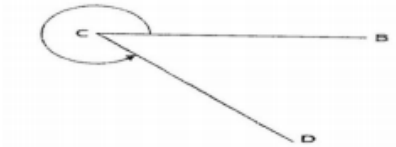
A. an acute   B. an obtuse   C. a revolution   D. a reflex

4. A car travels for 300 *km* at an average speed of 120*km/h*. If the trip started at 09:00 what time will the car reach the destination?

A. 10:30   B. 12:00   C.13:00   D. 11:30

5. Find the value of a.

2a - 10°   30° - a

A. $13,3^{0}$ B. 15^{0} C. 40^{0} D. 10^{0}

24
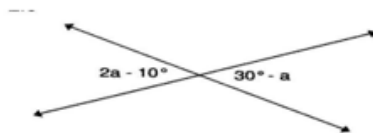
Number   Assessment

1. Simplify.

$$-2 + 3(1 - 4) - 2$$

2. ## Divide R120-00 in the ratio 3 : 2

3. $3x^2(x + 2) + 2x(x^2 + 3x)$

4. **Input Values**   **Output Values**

x   **y**

-2
0        $y = 3x + 2$ a
1   b
                                              c
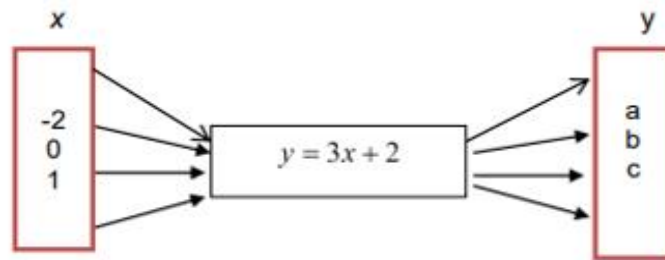
5. The HCF of 18 ; 30 and 48 is:

A 3   B 4   C 6   D 8

Number   Assessment

1. The number of terms in the expression $2(x + y) + xy - 39$ is ...

A 4   B 5   C 2   D 3

2. Six counters in a bag are numbered **3 4 7 9 10 11**.
One counter is drawn at random from the bag. The probability that the number
drawn is a prime number is ....

A $\dfrac{1}{6}$ B $\dfrac{1}{2}$ C $\dfrac{1}{3}$ D $\dfrac{4}{6}$

3. $(-5) - (-8) - (-7) - (+2)$

4. Solve for x

$2x - 1 = -5$

$3x - 2 = x + 4$

5. The sum of two numbers is 165 and their difference is 27. Find the numbers.

Number	Assessment
1.	**1. Write the following in expanded notation:** **Example:** 5,763 = 5 + 0,7 + 0.06 + 0,003 a. 9,371 b. 6,215 c. 34,672
2.	Solve for x if $\dfrac{3x+1}{2} = 5$ A. $x = 10$ B. $x = 4$ C. $x = 4\frac{1}{2}$ D. $x = 3$
3.	The mean of 9 , 15 , 9 , 15 , 17, 17 , 11 , 18 , 15 , 19 is
4.	If $x = -3$ and $y = 4$ find the value of: $$x(3x+4y)$$
5.	Calculate the length of BC.
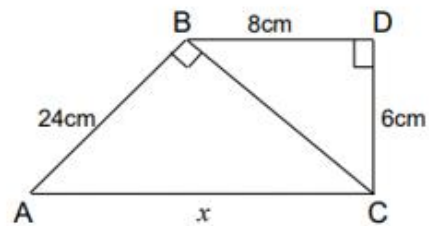
Number	Assessment
1.	Which grade has the least number of boys?
2.	Which grade has the biggest number of boys?
3.	In your opinion what makes this grade in 7.1.2 above to have a biggest number of boys than the other grades?
4.	$\sqrt[3]{27} + 3^2$ A. 19692 B. 9 C. 12 D. 15
5.	The area of rectangle ABCD is …
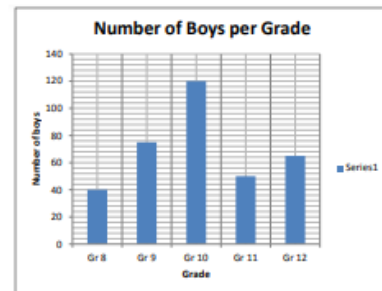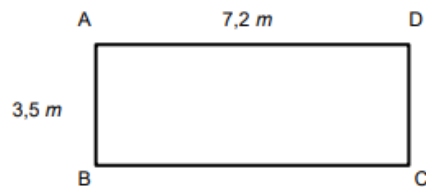
A. 31 m^2 B. 22,0m^2 C. 25,2 m^2 D. 21,0 m^2

Number | Assessment
1. | Study the patterns below and answer the questions that follows.

Pattern 1   Pattern 2   Pattern 3

How many black squares will be in the fourth and fifth pattern?

2. $(15a + 24b - 13c) - (12a - 18b + 11c)$

3.   Calculate, with reasons, the angles marked x and y.
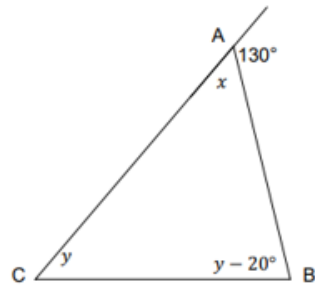
4.   In the diagram below, PQ = QR. Calculate the length of PR.
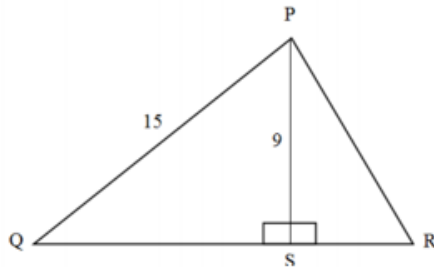
5.   The diagram below represents a doughnut. The radius of the smaller circle is 5*cm* and the radius of the larger circle is 7*cm*.

5.1.1   Determine the area of the smaller circle.

Number   Assessment

1.   The diagram below represents a container with water in it. The diameter
           of the container below is 11*cm* and the height of the container is 7*cm*.

7*cm*

WATE

3*cm*

11*cm*
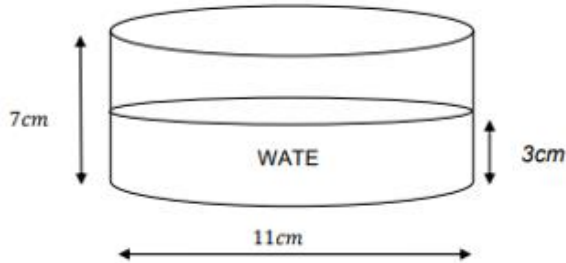
           Calculate the volume of the container.

2.   What is the capacity of the container? (i.e., how much liquid could
           it hold if it were filled to the brim.)

3.   The following are the ages of 25 people who took part in a fun run race:

10	12	15	30	27
16	20	14	17	37
47	48	37	32	19
25	49	46	17	18
29	31	43	48	40

Age	Tally	Frequency
10 – 19		
20 – 29		
30 – 39		
40 – 49		

4.   If the temperature is $-7\ ^{0}$C and then it rises by 15 ^{0}C, what will the
           temperature be?

           A $-22\ ^{0}$C   B $22\ ^{0}$C   C $8\ ^{0}$C   D $-8\ ^{0}$C

5.   The number of terms in the expression $2(x+y)+xy-39$ is ...

           A 4   B 5   C 2   D 3

28

Number   Assessment

1.

$$\frac{1}{2}+\frac{1}{4}\div(\frac{1}{3}-\frac{1}{4})$$

2.

Write 3 540 000 in scientific notation.

3.

The first four terms of a number pattern is 2 ; 7 ; 12 ; 17 ; …

Find the next three terms of the pattern.

Find the general term of the pattern in the form $T_n = ...$

4.
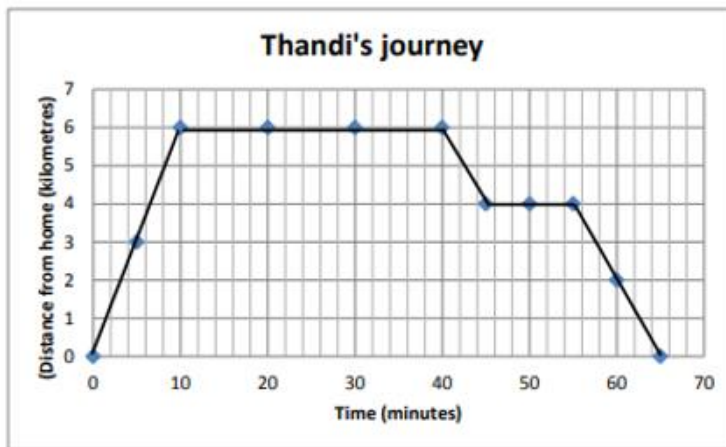
How far is Thandi's home from town?

How long was she away from home?

5.

Add $3x - 7x^2 + 4$ and $3 + 2x - x^2$

SM Assessment 12

Number	Assessment

1.

1. Write the following in expanded notation:

Example: 5,763
= 5 + 0,7 + 0,06 + 0,003

a. 9,371

b. 6,215

c. 34,672

2.

2. Write down the place value of each digit in words.

Example: 5,872
= 5 units + 8 tenths + 7 hundredths + 2 thousandths

a. 3,378 _____

b. 6,2914 _____

3.

3. Write the following in the correct column.

		thousands	hundreds	tens	units		tenths	hundredths	thousandths
a.	2,869				2	,	8	6	9
b.	24,328								

4.

4. Round off to the nearest tenth.

Example: 5,8④ ≈ 5,8

a. 5,24 _____

b. 3,53 _____

c. 5,55 _____

5.

5. Write the following as a decimal fraction.

Example: $\frac{2}{5} = \frac{4}{10} = 0,4$
$\frac{1}{25} = \frac{4}{100} = 0,04$

a. $\frac{1}{5}$ [ ]

b. $\frac{1}{4}$ [ ]

c. $\frac{1}{2}$ [ ]

SM Assessment 13

Number	Assessment

1.

1. Calculate.

Example: 2,37 + 4,53 − 3,88
= (2 + 4 − 3) + (0,3 + 0,5 − 0,8) + (0,07 + 0,03 − 0,08)
= 3 + 0 + 0,02
= 3,02

a. 2,15 + 8,21 − 7,21 =

b. 5,34 + 7,42 − 6,38 =

2.

2. Calculate.

Example 1: $(0,06)^2$
= 0,06 × 0,06
= 0,0036

Example 2: $(0,13)^2$
= 0,0169

a. $(0,03)^2$

b. $(0,05)^2$

c. $(0,01)^2$

3.

3. Calculate.

Example: $\sqrt{0,04}$
$= \sqrt{0,2 \times 0,2}$
$= 0,2$

a. $\sqrt{0,9}$

b. $\sqrt{0,1}$

4.

2. Find the length of the hypotenuse. Label the right angle.

Example:

4 cm

6 cm

$hypotenuse = \sqrt{4^2 + 6^2}$
$= \sqrt{16 + 36}$
$= \sqrt{52}$
$= 7,2 \text{ cm}$

a.

8 cm

12 cm

5.

5. Write the following in cm²

Example: 256 mm²

$\dfrac{256 \text{ mm}^2}{100}$

$= 2,56 \text{ cm}^2$

a. 576 mm²

SM Assessment 14

| Number | Assessment |

1.

$$\frac{12x^2 - 4x}{4x} - \frac{10x^2 - 15x}{5x}$$

2.

If this is the area of a triangle, what is a possible height and base?

Example: 7,35 cm²   If *base (b)* = 7 cm

Then: 7,35 cm² = $\frac{1}{2}$ (7 cm) × *h*

7,35 cm² = 3,5 cm × *h*

$h = \frac{7,35 \text{ cm}^2}{3,5 \text{ cm}}$

h = 2,1 cm

a. **16,2 cm²**

3.

3. Draw the height of each triangle and calculate the area. You will need a ruler.
Note: the height of a triangle is the line segment drawn from any vertex perpendicular to the opposite side.

Example:

a.

b.
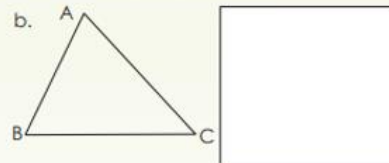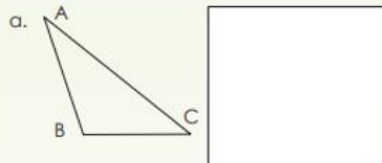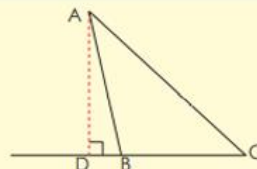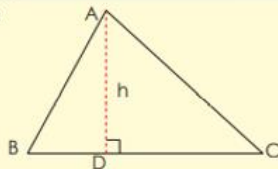
4.

Volume	

$V = b \times h \times l$
$V = \frac{1}{2}$ (6 cm) × 4 cm × 3 cm
$V = 3$ cm × 4 cm × 3 cm
$V = 36$ cm³

a.
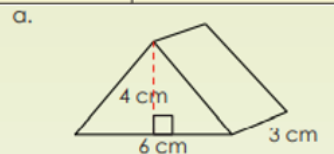
5.

1. What is the constant difference between the consecutive terms?

a. 6; 10; 14; 18   b. 12; 21; 30; 39   c. 15; 18; 21; 24

Number   Assessment

1.

Answer the following questions about this histogram.

Project hours worked

□ Number of people
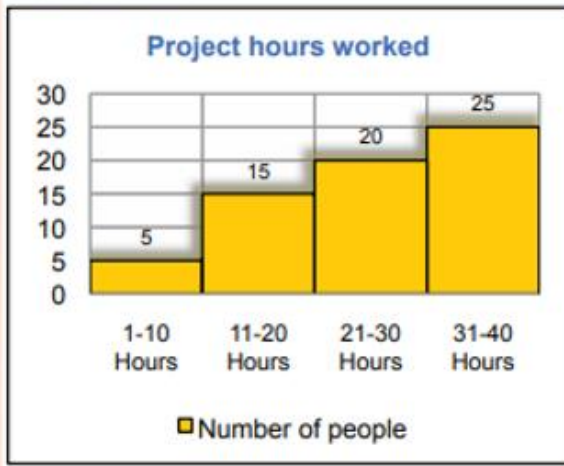
a. What is the shape of the graph?

2.

b. How many hours did less than 10 people work?

3.

c. How many hours did at least 20 people work.?

4.

Below are marks of a grade 9 class after writing a mathematics test out of 40. Answer the questions that follow based on the data. All answers must be rounded off to one decimal place.

27 25 27 29 31 24 25 27 28 29 24 26 30

28 31 25 25 27 28 28 28 26 28 31 24 30

Calculate the mean.

5.

Sarah gives R2, Mpho gives R4 and Jabu gives R6 to buy a packet of sweets.

If there are 24 sweets in the packet, how many sweets should each of the get?

Number	Assessment
1.	Consider the pattern: 9; 14; 19; 24;….. Determine the rule the nth term to describe the above pattern.

2.

Pattern 1   Pattern 2   Pattern 3   Pattern 4
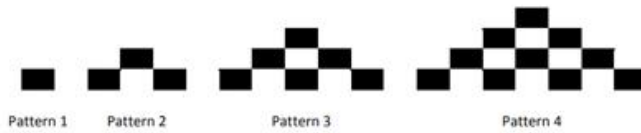
Draw the next pattern in the sequence.

3.

ΔPQT is a right-angled triangle with angle T = 90°. Find with reasons PT if PQ = 50cm and TQ = 40cm.
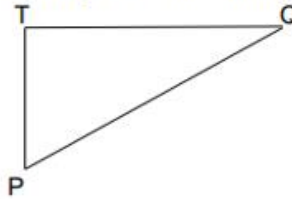
4. Calculate the size of the missing angles with reasons.
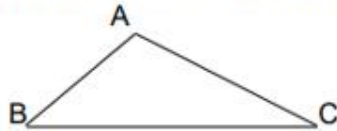
Angle A = 83°
Angle C = 38°

5. State whether the following are **TRUE** or **FALSE**

$$\sqrt{64 + 36} > \sqrt[3]{27}$$

SM Assessment 17

Number	Assessment
1.	

Temperature of a sick patient

Day and time
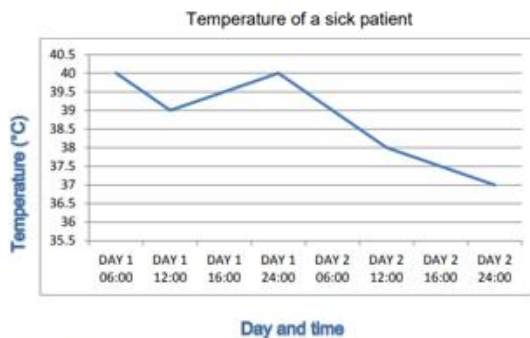
How many times a day was the patient's temperature taken?

| 2. | Use the equation $y = x + 4$ to answer the questions that follow. |

x	-2	-1
y		

3.   State whether the following are **TRUE** or **FALSE**

$2^3 + 2^2 = 4^5$

$3x^5 . 4x^2 = 12x^{10}$

$(3ab)^2 = 6a^2b^2$

4.   What is the sum of all the factors of 15?
   a)   9
   b)   15
   c)   23
   d)   24

5. $\dfrac{2x^3 y \times 3x^2 y}{12x^6 y^3}$

Funds-raising events

- Flea market 25%
- Dance 24%
- Cake sale 17%
- Flower sale 14%
- Dinner 11%
- Car wash 9%

Number	Assessment
1.	Ahmed is the treasurer of the grade 8 class at the Langalibalele High School. His class raised money for activities through various events. The total amount raised was R 2 440. Ahmed used a pie graph to show the amount of money each event raised.
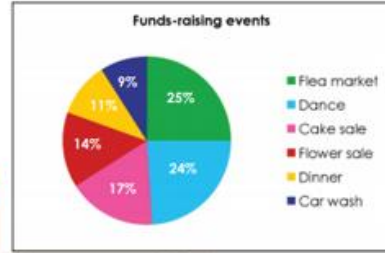
What percentage of the total money was raised at the car wash?

2.

The following table shows the number of glasses of water you drink during the week.

Day	Glasses of water
Monday	6
Tuesday	7
Wednesday	9
Thursday	8
Friday	10
Saturday	12
Sunday	5

What kind of graph would not be helpful in spotting general trends?

If you forgot to write down how many glasses of water you drank on Thursday, what kind of graph would be best to help you guess?
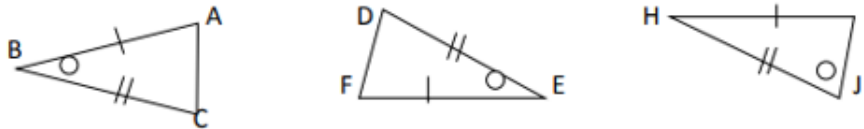
3. Consider the expression below when answering the questions that follow:

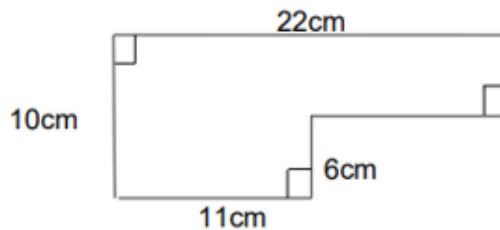$$-2x^2 + 7x^3 + 6x^2 - 2x^3 + 7 - x^3 - x + 2x$$

Write down the constant term.

If $x = -1$, evaluate the expression.

4. Which two triangles are congruent?

B, A, C

D, F, E

H, I, J

Δ_____ ≡ Δ_____

5. Calculate the perimeter of the diagram.

22cm
10cm
6cm
11cm

SM Assessment 19

Number	Assessment

1.

1. Calculate.

Example: $2 \div \frac{3}{4}$

$$= \frac{2}{1} \times \frac{4}{3}$$

$$= \frac{8}{3}$$

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

a. $4 \div \frac{4}{5} =$

b. $7 \div \frac{7}{9} =$

2.

On a popular television show, contestants are asked to pick one ball from a bag of balls. These balls correspond to various prizes. There are **10 balls** in the bag:

4 balls are **BLUE** and they win you a cell phone
3 balls are **GREEN** and they win you a Fridge
2 balls are **BLACK** and they win you World Cup Tickets
1 ball is **WHITE** and it wins you a car.

Which prize would a contestant win if he/she got a black ball?

Which prize is a contestant **most** likely to win?

3.

OPTION A:
SQUARE

OPTION B:
PARALLELOGRAM

OPTION C:
KITE

OPTION D:
TRAPEZIUM
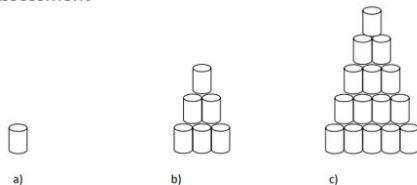
Shape has 2 pairs of parallel sides and corners of 90°.

Shape has one pair of opposite angles equal.

SM Assessment 20

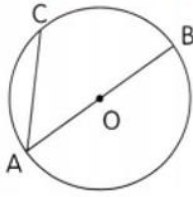| Number	Assessment

1.

a)   b)   c)

How many cans will there be in figure: e) _____ f) _____

How many rows are there in: a) _____ b) _____ c) _____

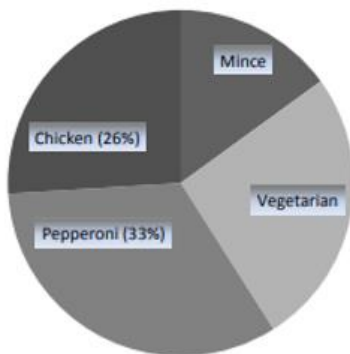**2.**

Which one of the following is the diameter?

a) OA
b) OB
c) AC
d) AB

The grade 8s were asked to name their favourite pizza topping. The pie chart represents their choices. The same number of pupils like vegetarian and chicken on their pizzas.

3.

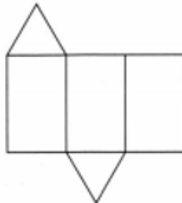What percentage of pupils like mince?
a) 15%
b) 8%
c) 20%
d) 12%

4.

What is the sum of all the factors of 15?
a) 9
b) 15
c) 23
d) 24

5.

The figure below shows the net of a solid. What is the name of the solid?

a) cuboid
b) triangular prism
c) cylinder
d) triangular pyramid