PLANNER & TRACKER FOR RECOVERY ANNUAL TEACHING PLAN (ATP)

MATHEMATICS

GRADE 8 TERM 4

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 4.
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, term 2 and term 3 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, 2 and 3 must be viewed and implemented in term 4, 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 4 Planner and Tracker has 48 teaching and learning days, of which 15 days are used for formative and summative Assessment days.
- NECT Term 4 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 9.

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 4	Week 1 4 days	Week 2 5 days	Week 3 5 days	Week 4 5 days	Week 5 5 days	Week 6 5 days	Week 7 5 days	Week 8 5 days	Week 9 5 days	Week 10 3 days
Hours per week	3.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	4.5 hrs.	3 hrs.
Hours per topic	8 hrs.		4.5 hrs.		4.5.hrs	4.5 hrs.	4.5 hrs	4.5 hrs.	7.5 hrs	
Topic, concepts, skills and values	**GRAPHS** **Interpreting graphs** • **Revise**: Analyse and interpret global graphs of problem situations, with special focus on the following trends and features: – linear or non-linear – constant, increasing or decreasing • Analyse and interpret global graphs of problem situations, with a special focus on the following trends and features: – maximum or minimum – discrete or continuous **Drawing graphs** • Draw global graphs from given descriptions of a problem situation, identifying features listed above • Use tables or ordered pairs to plot points and draw graphs on the Cartesian plane		**TRANSFORMATION GEOMETRY** **Transformations** • Recognize, describe and perform transformations with points on a co-ordinate plane, focusing on: – reflecting a point in the X-axis or Y-axis – translating a point within and across quadrants • Recognize, describe and perform transformations with triangles on a co-ordinate plane, focusing on the co-ordinates of the vertices when: – reflecting a triangle in the X-axis or Y-axis – translating a triangle within and across quadrants	**THEOREM OF PYTHAGORAS** **Develop and use the Theorem of Pythagoras** • Investigate the relationship between the lengths of the sides of a right-angled triangle to develop the Theorem of Pythagoras • Determine whether a triangle is right-angled triangle or not if the lengths of the three sides of the triangle is known • Use the Theorem of Pythagoras to calculate the missing length in a right-angled triangle, leaving irrational answers in surd form.	**AREA AND PERIMETER OF 2-D SHAPES** **Area and perimeter** • Use appropriate formulae to calculate perimeter and area of: circles • Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles • Use and describe the relationship between the radius, diameter and circumference of a circle in calculations • Use and describe the relationship between the radius and area of a circle in calculations **Calculations and solving problems** • Solve problems, with or without a calculator, involving perimeter and area of polygons and circles to at least 2 decimal places • Use and describe the meaning of the irrational number Pi (π) in calculations involving circles • Use and convert between appropriate SI units, including: $mm^2 \leftrightarrow cm^2 \leftrightarrow m^2 \leftrightarrow km^2$		REVISION OF TERM 3 AND 4 WORK	FORMAL ASSESMENT TASK **TEST** All Term 3 and Term 4 topics		

CORE QUESTIONS	DID ALL LEARNERS MASTER TERM 1 AND TERM 2 SKILLS?	DID ALL LEARNERS MASTER TERM 3 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 4: Implement DBE Diagnostic – see exemplar in Planner and Tracker – or any similar diagnostic – Based on term 1, term 2 and term 3 core skills. Teachers are encouraged to use the exemplar, based on what content they have completed. 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 = 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) PREPARATION: Test, Marking Guideline/s, Marksheet and apparatus.

11 – 15 October 2021

Week 1					
Lesson	**ATP Content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
1		Baseline: (Revision, consolidation of term 1,2 & 3 skills)			
2		Baseline: Remediation – error analysis			
3	GRAPHS Interpreting graphs: Revise: Analyse and interpret global graphs of problem situations, with special focus on the following trends and features:– linear or non-linear– constant, increasing or decreasing	Interpret the line graph Label parts of the graph Explain the constant Explain an increasing graph Explain a decreasing graph Distinguish between linear, non-linear	Bk 1 No. R9 (pp. xxvi & xxvii) Bk 2 No. 114a (pp. 134 & 135)		
4	GRAPHS Interpreting graphs: Revise: Analyse and interpret global graphs of problem situations, with special focus on the following trends and features:– linear or non-linear– constant, increasing or decreasing	Interpret temperature and time graph. Describe the graph Complete a table from a given graph	Bk 2 No. 114b (pp. 136 & 137)		
5	GRAPHS Interpreting graphs: Revise: Analyse and interpret global graphs of problem situations, with special focus on the following trends and features:– linear or non-linear– constant, increasing or decreasing	Interpret rainfall and month graph. Describe the linear, non-linear, increasing, decreasing, maximum, minimum.	Bk 2 No. 115 (pp. 138 & 139)		

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: • Interpret the line graph • Label parts of the graph • Explain the constant • Explain an increasing graph • Explain a decreasing graph • Distinguish between linear, non-linear • Interpret temperature and time graph. • Describe the different shaped graphs • Complete a table from a given graph • Interpret rainfall and month graph. • Describe the linear, non-linear, increasing, decreasing, maximum, minimum.	What will you change next time? Why? **Struggling Learners Names:** **HOD:** **Date:**

18 - 22 October 2021

Week 2					
Lesson	**ATP Content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
6	GRAPHS Interpreting graphs: Revise: Analyse and interpret global graphs of problem situations, with special focus on the following trends and features:– linear or non-linear– constant, increasing or decreasing Analyse and interpret global graphs of problem situations, with a special focus on the following trends and features:– maximum or minimum– discrete or continuous	Interpret given graphs linear non-linear Interpret a cyclist activity wrt speed, time and distance	Bk 2 No. 116 (pp. 140 & 141)		
7	GRAPHS Drawing graphs Draw global graphs from given descriptions of a problem situation, identifying features listed above. Use tables or ordered pairs to plot points and draw graphs on the Cartesian plane	Plot points in Cartesian Plane. Describe position of points.	Bk 2 No. 117a (pp. 142 & 143) No. 117b (pp. 144 & 145)		
8	GRAPHS Drawing graphs Draw global graphs from given descriptions of a problem situation, identifying features listed above. Use tables or ordered pairs to plot points and draw graphs on the Cartesian plane	Working with ordered pairs in four quadrants Label quadrants	Bk 2 No. 118 (pp. 146 & 147) No. 119 (pp. 148 & 149)		
9	GRAPHS Drawing graphs Draw global graphs from given descriptions of a problem situation, identifying features listed above. Use tables or ordered pairs to plot points and draw graphs on the Cartesian plane	Drawing parabolas by plotting points Explain min. and max. points Use tables to get ordered pairs.	Bk 2 No. 120 (pp. 150 & 151)		
10	Assessment Activity: Consolidate and revise – use SM Activities				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Interpret given graphs linear non-linear • Interpret a cyclist activity wrt speed, time and distance • Plot points in Cartesian Plane. • Describe position of points. • Working with ordered pairs in four quadrants • Label quadrants • Drawing parabolas by plotting points • Explain min. and max. points • Use tables to get ordered pairs.	What will you change next time? Why? **Struggling Learners Names?** **HOD:** **Date:**

25 – 29 October 2021

Week 3					
Lesson	**ATP content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
11	TRANSFORMATION GEOMETRY Recognize, describe and perform transformations with points on a co-ordinate plane, focusing on:– reflecting a point in the X-axis or Y-axis– translating a point within and across quadrants	Describe reflection Describe translation	Bk 2 No. 121 (pp. 152 & 153)		
12	TRANSFORMATION GEOMETRY Recognize, describe and perform transformations with points on a co-ordinate plane, focusing on:– reflecting a point in the X-axis or Y-axis– translating a point within and across quadrants	Plot points and reflect in X and Y-axis	Bk 2 No. 122 (pp. 154 & 155)		
13	TRANSFORMATION GEOMETRY Recognize, describe and perform transformations with triangles on a co-ordinate plane, focusing on the co-ordinates of the vertices when:– reflecting a triangle in the X-axis or Y-axis – translating a triangle within and across quadrants	Plot points and translate. Describe image and pre-image Describe given translations Translate triangles Describe translation vectors	Bk 2 No. 124a (pp. 158 & 159)		
14	TRANSFORMATION GEOMETRY Recognize, describe and perform transformations with triangles on a co-ordinate plane, focusing on the co-ordinates of the vertices when:– reflecting a triangle in the X-axis or Y-axis – translating a triangle within and across quadrants	Describe given translations Translate triangles Describe translation vectors	Bk 2 No 124b (pp. 160 & 161)		
15	Assessment Activity: Consolidate and revise — use SM Activities				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Describe reflection • Describe translation • Plot points and reflect in X and Y-axis • Plot points and translate. • Describe image and pre-image • Describe given translations • Translate triangles • Describe translation vectors	What will you change next time? Why? **Struggling Learners names:** **HOD:** **Date:**

1 – 5 November 2021

Week 4					
Day	**ATP Content**	**CAPS content, concepts, skills**	**DBE workbook**	**Resources**	**Date**
16	THEOREM OF PYTHAGORAS Develop and use the Theorem of Pythagoras Investigate the relationship between the lengths of the sides of a right-angled triangle. Determine whether a triangle is right-angled triangle or not if the lengths of the three sides of the triangle is known Use the Theorem of Pythagoras to calculate the missing length in a right-angled triangle, leaving irrational answers in surd form.	Explore sides of right-angled triangles Work with squares on sides of triangle Identify the hypotenuse	Bk 2 No 77 (pp. 32 & 33)		
17	THEOREM OF PYTHAGORAS Develop and use the Theorem of Pythagoras Investigate the relationship between the lengths of the sides of a right-angled triangle. Determine whether a triangle is right-angled triangle or not if the lengths of the three sides of the triangle is known Use the Theorem of Pythagoras to calculate the missing length in a right-angled triangle, leaving irrational answers in surd form.	Explore sides of right-angled triangles Write equations from given right angled triangles Understand fractal using theorem of Pythag.	Bk 2 No 78 (pp. 34 & 35)		
18	THEOREM OF PYTHAGORAS Develop and use the Theorem of Pythagoras Investigate the relationship between the lengths of the sides of a right-angled triangle. Determine whether a triangle is right-angled triangle or not if the lengths of the three sides of the triangle is known Use the Theorem of Pythagoras to calculate the missing length in a right-angled triangle, leaving irrational answers in surd form.	Calculate unknown sides Using theorem of Pythag	Bk 2 No 79 (pp. 36 & 37)		
19	THEOREM OF PYTHAGORAS Develop and use the Theorem of Pythagoras Investigate the relationship between the lengths of the sides of a right-angled triangle. Determine whether a triangle is right-angled triangle or not if the lengths of the three sides of the triangle is known Use the Theorem of Pythagoras to calculate the missing length in a right-angled triangle, leaving irrational answers in surd form.	Find length of diagonals in rectangles/squares Calculate missing sides and leave in surd form	Bk 2 No 80 (pp. 38 & 39) No. 81 (pp. 40 & 41)		
20	Assessment Activity: Consolidate and revise – use SM Activities				
Reflection					

DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:	What will you change next time? Why?
• Explore sides of right-angled triangles • Work with squares on sides of triangle • Identify the hypotenuse • Explore sides of right-angled triangles • Write equations from given right angled triangles • Understand fractal using theorem of Pythagoras • Calculate unknown sides • Using theorem of Pythagoras • Find length of diagonals in rectangles/squares • Calculate missing sides and leave in surd form	**Struggling Learners Names**: **HOD:** **Date:**

8 – 12 November 2021

Week 5					
Day	**ATP Content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
21	AREA AND PERIMETER OF 2-D SHAPES Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles	Find perimeter of a square Find the area of a square Convert between cm and mm square units Find a side if area given	Bk 2 No. 82a (pp. 42 & 43)		
22	AREA AND PERIMETER OF 2-D SHAPES Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles	Find perimeter of a square Find the area of a square Convert between cm and mm square units Find a side if area given	Bk 2 No. 82b (pp. 44 & 45)		
23	AREA AND PERIMETER OF 2-D SHAPES Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles	Find perimeter of a rectangle Find the area of a rectangle Convert between cm and mm square units Find a side if area given	Bk 2 No. 83 (pp. 46 & 47)		
24	AREA AND PERIMETER OF 2-D SHAPES Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles	Find the area of a triangle Convert between cm and mm square units Find a side if area given Draw the heights of a variety of triangles	Bk 2 No. 84 (pp. 48 & 49)		
25	Assessment Activity: Consolidate and revise – use SM Activities				
Reflection					

DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO:	What will you change next time? Why?
• Find perimeter of a square • Find the area of a square • Convert between cm and mm square units • Find a side if area of square is given • Find perimeter of a rectangle • Find the area of a rectangle • Find a side if area of rectangle is given • Find the area of a triangle • Find a side if area of triangle is given • Draw the heights of a variety of triangles	**Struggling Learner names:** **HOD:** **Date:**

15 – 19 November 2021

Week 6					
Day	**ATP Content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
26	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae to calculate perimeter and area of: circles Use and describe the relationship between the radius, diameter and circumference of a circle in calculations Use and describe the relationship between the radius and area of a circle in calculations	Find perimeter of a circle - circumference Find the area of a circle Define pi Apply formulae for area and circumference	Bk 2 No. 85 (pp. 60)		
27	AREA AND PERIMETER OF 2-D SHAPES Use appropriate formulae to calculate perimeter and area of: circles Use and describe the relationship between the radius, diameter and circumference of a circle in calculations Use and describe the relationship between the radius and area of a circle in calculations	Find perimeter of a circle - circumference Find the area of a circle Define pi Apply formulae for area and circumference	Bk 2 No. 85 (pp. 61)		
28	AREA AND PERIMETER OF 2-D SHAPES- Calculations and solving problems: Solve problems, with or without a calculator, involving perimeter and area of polygons and circles to at least 2 decimal places Use and describe the meaning of the irrational number Pi (π) in calculations involving circles Use and convert between appropriate SI units, including: mm2 ↔ cm2 ↔ m2 ↔ km2	Match formulas to words Solve real problems	Bk 2 No. 86 (pp. 62)		
29	AREA AND PERIMETER OF 2-D SHAPES- Calculations and solving problems: Solve problems, with or without a calculator, involving perimeter and area of polygons and circles to at least 2 decimal places	Match formulas to words Solve real problems	Bk 2 No. 86 (pp. 63)		

	Use and describe the meaning of the irrational number Pi (π) in calculations involving circles Use and convert between appropriate SI units, including: mm2 ↔ cm2 ↔ m2 ↔ km2				
30	Assessment Activity: Consolidate and revise – use SM Activities				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? ARE THEY ABLE TO: • Find perimeter of a circle - circumference • Find the area of a circle • Define pi • Apply formulae for area and circumference • Match formulas to words • Solve real problems	What will you change next time? Why? **Struggling Learners Names:** **HOD:** **Date:**

22 – 26 November 2021

Week 7					
Day	**ATP Content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
31	Consolidation assessment 1				
32	Remediation				
33	Consolidation assessment 2				
34	Remediation				
35	Consolidation assessment 3 plus remediation				

Reflection	
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? WHAT ARE THEY ABLE TO MASTER: •	What will you change next time? Why? **Struggling Learners Names:** **HOD:** **Date:**

29 November – 3 December 2021

Week 8					
Day	**ATP content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
36	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
37	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
38	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
39	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
40	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
Reflection					
DID ALL THE LEARNERS LEARN THE WEEKLY SKILLS? WHAT SKILLS ARE THEY ABLE TO MASTER?		What will you change next time? Why? Struggling Learners Names:			
		HOD:			**Date:**

6 – 10 December 2021

Week 9					
Day	**ATP content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
41	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
42	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
43	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
44	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
45	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
Reflection					
		What will you change next time? Why?			
		HOD:			**Date:**

13 – 15 December 2021 (three-day week)

Week 10					
Day	**ATP content**	**concepts, skills**	**DBE workbook**	**Resources**	**Date**
46	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
47	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
48	FORMAL ASSESSMENT TASK TEST – term 3 and 4 concepts				
49					
50					

Reflection	
Identify some skills that need revising during the next term in 2022	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 is ONE FORMAL Assessment tasks: 1) Test
- The Skills mastery assessments – aimed at consolidating, revising and remediating skills already covered this year - are added at the end of the document.

Written assessment tasks are to be selected and marked by teachers in appropriate lessons according to the lesson plans. Teachers may wish to group the items or use them individually.

Week	**Skills Mastery Activities (Tuesdays and Thursdays)**	**Formative Assessment Activities: Aimed to enhance Revision Programme**
1	Baseline Assessment	Baseline Assessment

2	**Tuesday** Skills mastery Assessment 1 **Thursday** Skills mastery Assessment 2	
3	**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	
6	**Tuesday** Skills mastery Assessment 9 **Thursday** Skills mastery Assessment 10	
7		**Lesson 1 and 2** Consolidation Assessment 1 plus Remediation **Lesson 3 and 4:** Consolidation Assessment 2 plus Remediation **Lesson 5** Consolidation Assessment 3 plus Remediation
8		FORMAL ASSESSMENT TASK – Test
9		FORMAL ASSESSMENT TASK – Test
10		**FORMAL ASSESSMENT TASK – Test**

Exemplar Written Assessment ITEMS with marking memos.

The exemplar items can be used as a diagnostic pre-assessment, but can be used, later in the term, as a post-assessment to monitor learning.

The skills mastery items can be used as a secondary assessment, both to monitor progress in learning skills and mastery of skills. For example, the teacher can select 5 items from the first three Skills Mastery Assessments (a selection from 15 items) and use it for end of week assessments. End-of-week days have been planned for this purpose, as well as for consolidating the learning of the week's content.

- Written assessments is to be done in addition to oral and practical assessment to carry out meaningful continuous assessment throughout the term.
- You need to plan when you will do a written assessment. We suggest you do it at the end-of week.
- The questions provided in the exemplar and Skills Mastery Assessments are taken from past written assessment papers and assessments generally, that were previously in the

lesson plans. We suggest you use selected items as smaller written assessment tasks. This aligns better with the curriculum objective of continuous assessment.

- There is one lesson "slot" per week that is assigned for you to catch up or consolidate the lesson plan content covered in the week's lessons. This lesson should also be used for the purpose of carrying out written assessment tasks or to complete oral or practical tasks for that week.

ITEM BANK FOR DIAGNOSTIC: EXEMPLAR

It is recommended that teachers divide this diagnostic exemplar into two parts because of the time duration. The second part can be done as an assessment at the end-of-week slot.

INSTRUCTIONS TO LEARNERS:

1. There are thirteen questions. Answer all questions.
2. Show all your calculations where necessary. Full marks will not be awarded where working out should be shown but is not.
3. Scientific non-programmable calculators may be used.
4. Squared paper is provided for graphs.
5. Please note that diagrams are not drawn to scale.

QUESTION 1:

1.1 Write 720 as a product of its prime factors. (1)

1.2 If $a = 3$ and $b = -2$, what is the value of $a^3 - (2b)^2$? (2)

1.3 Write expressions for each of the following:

1.3.1 The product of $(a + b)$ and 2 (1)

1.3.2 Six times a number decreased by 10 (1)

[6]

QUESTION 2:

2.1 Write in ascending order:

a) 3,76; 3,761; 3,701; 3,7; 3,07 (1)

b) $\frac{5}{6}; \frac{7}{8}; \frac{6}{9}; \frac{5}{5}$ (2)

2.2 There are 300 learners in a school. $\frac{3}{5}$ of the learners in a school are girls. $\frac{1}{10}$ of the boys and $\frac{1}{9}$ of the girls failed their exams. Calculate:

2.2.1 The number of boys in the school (2)

2.2.2 The percentage of learners w h o failed. (4)

2.3 There is a 20% sale on sunglasses. Determine the original price of a pair of sunglasses if the sale price is R99,99. (2)

[11]

QUESTION 3: No calculator

Evaluate each of the following expressions:

3.1 $2\frac{3}{8} - 4\frac{7}{12}$ (2)

3.2 $(3\sqrt{9} + \sqrt{48+1}) \div 2$ (2)

3.3 $\sqrt[3]{-2\frac{10}{27}}$ (2)

3.4 $5{,}65 \times 7{,}3$ (2)

QUESTION 4:

Simplify:

4.1 $(3r-1)(3r+1)-6r(r-1)^2-4r(1-r)$ (5)

4.2 Subtract $-6d^2+4bc-10cd$ from $-16bc+cd-8d^2$ (3)

4.3 $\frac{7xy^2-5x^3y+3xy}{-xy}$ (3)

4.4 $(6mn)^0\times(-3m^2)^2\times(2n^2)^3$ (3)

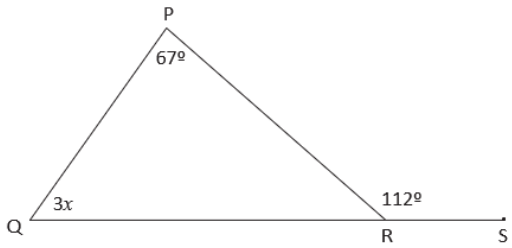
4.5 $\frac{-3y^7x^6}{4y^3}\div\frac{x^5}{8y^2}$ (3)

[17]

QUESTION 8: *Give reasons for each statement.*

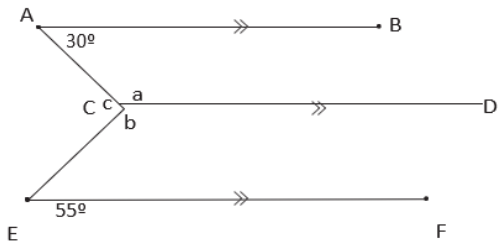
8.1 8.1 Use your pair of compasses to construct a 120° angle. (3)

8.2 8.2.1 Given ΔPQR with QRS a straight line. Solve for x



(3)

8.2.2 AB //CD //EF. Determine the values of a, b and c



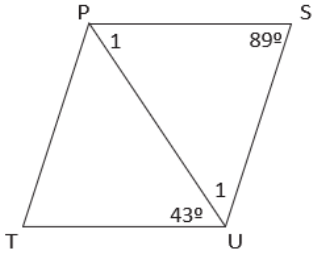
(3)

8.2.3 If PSUT is a rhombus, determine the value of:

a) T (2)

b) U_1 (3)

c) Why is ΔPTU///ΔUSP? (3)



[17]

SOLUTIONS AND MEMORANDUM: WITH COGNITIVE LEVELS

Note: The last column in the memorandum shows the cognitive level for each question in the test.

The levels are:

K: Knowledge – straight recall of facts

RP: Routine Procedures – well-known, simple applications and calculations

C: Complex Procedures – procedures involving complex calculations and/or higher reasoning

P: Problem Solving – solving problems for which higher order reasoning and processes are involved

More information about these levels can be found in the CAPS (p. 157).

SOLUTIONS	Marks and comments	COGNITIVE LEVELS
QUESTION 1:		
1.1 $720 = 3 \times 3 \times 2 \times 2 \times 2 \times 2 \times 5$ $= 3^2 \times 2^4 \times 5$ ✓ *prime factors*	(1)	RP
1.2 $a3 - (2b)^2$ $= 3^3 - (2(-2))^2$ ✓ *substitution* $= 27 - (-4)^2$ $= 27 - 16$ ✓ *simplification* $= 11$ ✓ *answer*	(2)	RP
1.3.1 $2(a + b)$ ✓ *expression*	(1)	K
1.3.2 $6x - 10$ ✓ *expression*	(1)	RP
1.4 $0{,}0165283 = 1{,}65283 \times 10^{-2}$ ✓ *notation*	(1)	RP

SOLUTIONS	Marks and comments	COGNITIVE LEVELS
QUESTION 2:		
2.1 Written in ascending order:		
a) 3,07; 3,7; 3,701; 3,76; 3,761 ✓ *perfect order*	(1)	K
b) $\frac{5}{6}; \frac{7}{8}; \frac{6}{9}; \frac{5}{5}$		
= 0,83; 0,875; 0,67; 1		
ascending order: 0,67; 0,83; 0,875; 1 ✓ *decimals*	(2)	CP
$= \frac{6}{9}; \frac{5}{6}; \frac{7}{8}; \frac{5}{5}$ ✓ *answer*	Or can use equivalent fractions with same LCD	
2.2.1 Number of boys: $= \frac{2}{5} \times 300$ ✓ *expression*		
$= 2 \times 60$		
= 120 boys ✓ *answer*		
Or $\frac{3}{5} \times 300$ ✓ $= 3 \times 60 = 180$ ✓ *calculation*		
300 – 180 = 120 ✓ *answer*	(2)	RP
2.2.2 Boys: $\frac{1}{10} \times 120$		
= 12 boys ✓ *answer*		
Girls: $\frac{1}{9} \times 180$		
= 20 girls ✓ *answer*		
Therefore		
12 +20 = 32		
$\frac{32}{300} \times 100$ ✓ *expression*		
= 10,67% failed their exam ✓ *answer*	(4)	PS
2.3 Sale price: R99,99		
Original price: $\frac{x}{100} = \frac{99,99}{80}$		
$x = 99,99 \times \frac{100}{80}$ ✓ *equation*		
x = R124,99 ✓ *answer*	(2)	CP

SOLUTIONS	Marks and comments	COGNITIVE LEVELS
QUESTION 3:		
3.1 $2\frac{3}{8} - 4\frac{7}{12} = \frac{19}{8} - \frac{55}{12} = \frac{57-110}{24}$ ✓ *numerator with LCD* $= \frac{-53}{24} = -2\frac{5}{24}$ ✓ *final answer (improper or mixed)*	(2)	RP
3.2 $(3\ \ 9 + \sqrt{48+1}) \div 2$ $= \frac{(3(3)+\sqrt{49})}{2}$ ✓ *simplification* $= \frac{9+7}{2}$ $= \frac{16}{2}$ $= 8$ ✓ *answer*	(2)	RP
3.3 $-2\frac{10}{27}^{3}$ $= -\frac{64}{27}^{3}$ ✓ *improper fraction* $= -\frac{4}{3}$ ✓ *answer*	(2)	RP
3.4 $5{,}65 \times 7{,}3 = 41{,}245$ ✓✓ *answer*	(2) Long mult.	RP
QUESTION 4:		
4.1 $(3r-1)(3r+1) - 6r(r-1)^2 - 4r(1-r)$ $= 9r^2 - 1 - 6r(r^2 - 2r + 1) - 4r + 4r^2$ ✓✓✓ *simplification* $= 9r^2 - 1 - 6r^3 + 12r^2 - 6r - 4r + 4r^2$ ✓ *simplification* $= -6r^3 + 25r^2 - 10r - 1$ ✓ *answer*	(5)	RP
4.2 $-16bc + cd - 8d^2 - (-6d^2 + 4bc - 10cd)$ ✓ *expression* $= -16bc + cd - 8d^2 + 6d^2 - 4bc + 10cd$ ✓ *simplification* $= -2d^2 - 20bc + 11cd$ ✓ *answer*	(3)	RP

SOLUTIONS	Marks and comments	COGNITIVE LEVELS
4.3 $\frac{7xy^0 - 5x^1y + 3xy}{-xy}$ $= \frac{7xy^0}{-xy} - \frac{5x^1y}{-xy} + \frac{3xy}{-xy}$ ✓ ✓ *fractions written separately* $= -7y + 5x^{-2} - 3$ ✓ *answer*	(3)	CP
4.4 $(6mn)^0 \times (-3m^2)^2 \times (2n^2)^3$ $= 1 \times 9m^4 \times 2^3n^6$ ✓ *simplification* $= 1 \times 3m^2 \times 8n^6$ ✓ *simplification* $= 24\,m^2n^6$ ✓ *answer*	(3)	CP
4.5 $\frac{-3y^7x^4}{4y^8} \div \frac{x^4}{8y^0}$ $= \frac{-3y^7x^4}{4y^8} \times \frac{8y^0}{x^4}$ ✓ *multiplication* $= \frac{-24y^7x^4}{4y^8x^4}$ ✓ *simplification* $= -6y^{-1}x$ ✓ *answer*	(3)	RP

SOLUTIONS	Marks and comments	COGNITIVE LEVELS
QUESTION 8:		
8.1 Construction (construct an equilateral triangle to obtain 60° and then another equilateral congruent triangle adjacent to that to obtain 120°) ✓ ✓ *procedure* ✓ *accurate measurement*	(3)	K
8.2.1 $3x + 67º = 112º$ ✓ *equation* (Exterior angle of triangle) ✓ *reason* $3x = 112º - 67º$ $\frac{3x}{3} = \frac{45º}{3}$ ✓ *simplification* $x = 15º$ ✓ *simplification*	(3)	RP
8.2.2 $a = 150º$ (AB//CD; Co-int angles) ✓ *statement & reason (s&r)* $b = 125º$ (CD//EF; Co-int angles) ✓ *(s&r)* $c = 360º - (150º + 125º)$ (Angles round a point) $= 360º - 275º$ $= 85º$ ✓ *answer*	(3)	RP
8.2.3 a) T= 89 ✓ (opposite angles of a rhombus) ✓ *theory*	(2)	K

SOLUTIONS	Marks and comments	COGNITIVE LEVELS
b) $P_1 = 43º$ (alt. angles) ✓ *(s&r)* $U_1 + S + P_1 = 180º$ (Sum of angles of a triangle) /co-int angles) ✓ *(s&r)* $U_1 + 89° + 43° = 180°$ $U_1 = 180° - 89° - 43°$ $U_1 = 48°$ ✓ *answer*	(3)	RP
c) $P_2 = U_1 = 48°$ (alt.<'s) ✓ *(s&r)* T = S = 89° (proved) ✓ *(s&r)* PUT = $P_1 = 43º$ (proved) ✓ *(s&r)* ΔPTU///Δ USP (<,<,<)	(3)	RP

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 EXEMPLARS

Skills Mastery (SM) Assessment 1

Number	Assessment
1.	$x + x + x =$
	A x^3
	B $3x$
	C $3x^3$
	D $4x$

3. Write down the LCM of 12 and 48.

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

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

5.

Term	2	4	6	8	n
Value of the term	6	62	214	510	

What will the 20th term value be?_____ Rule: _____

SM Assessment 2

Number Assessment

1. Write down all the factors of 28.

2. Fill in the missing number in the number sequence below.

$-1\,;-4\,;-7\,;\ \_\_\_\_\,;-13\,;-16$

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

4. $1\frac{2}{3}\times\frac{5}{6}$ (Write the answer as a mixed number.)

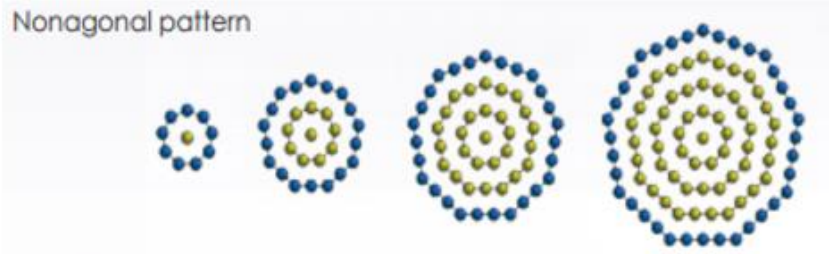
5. Describe the relationship between the numbers in the top row and those in the bottom row in the table.

x	0	1	2	20	50	100
y	4	7	10	64	154	304

SM Assessment 3

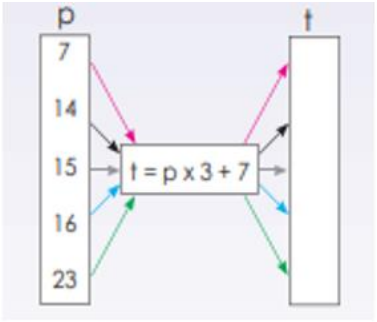
Number Assessment

2.



Position of the term in the pattern							n
Number of sections							

3.



4. Consider the expression $7x^2 + 5x + 4$ and then answer the questions that follow.

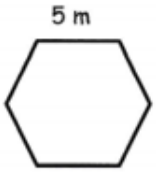
   Write down the constant term.

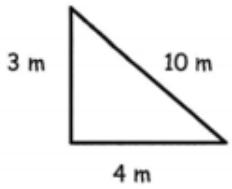
5. Calculate the value of the expression $7x^2 + 5x + 4$ if $x = -1$.

SM Assessment 4

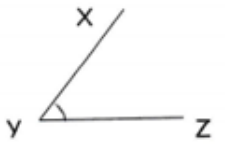
Number Assessment

1. Calculate the perimeter of the Hexagon and the area of the triangle below:





2. Use your protractor to measure the angles given below:



$X\hat{Y}Z =$ _____

3.

Common fraction	Decimal fraction	Percentage	Out of 100
$\frac{1}{2}$		50%	$\frac{50}{100}$
	0,75		$\frac{75}{100}$
$\frac{9}{10}$	0,9	90%	

4. Fill in the additive inverse for the following numbers:

-6 additive inverse : _____

7 additive inverse : _____

5. -14 - (-10) + 17

SM Assessment 5

Number Assessment

1. Complete the simplification steps below:

$2y \times 3y^2 - 14y \times y^2$

= _____ − _____

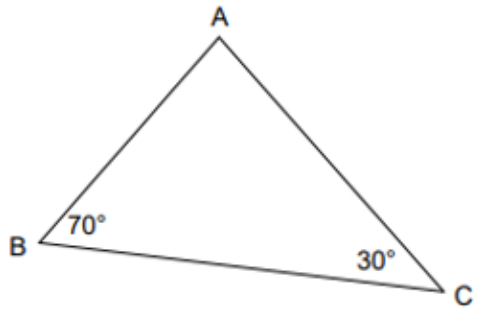
= _____

2. Choose the correct angle size from the list below only once to complete each statement.

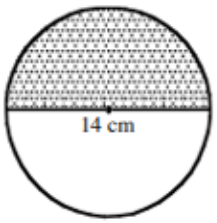
60°	90°	180°	360°

The largest angle in a right-angled triangle = _____

3. In ΔABC, $\hat{B} = 70°$ and $\hat{C} = 30°$. Calculate the size of $\hat{A}$.



4. The diagram below shows a circle with the diameter of 14 cm.



Calculate the area of the shaded part of the circle. Give your answer in cm^2.

(Use $\pi = \frac{22}{7}$)

A. 22 B. 44

C. 77 D. 154

5. How many minutes are there in 2 days?

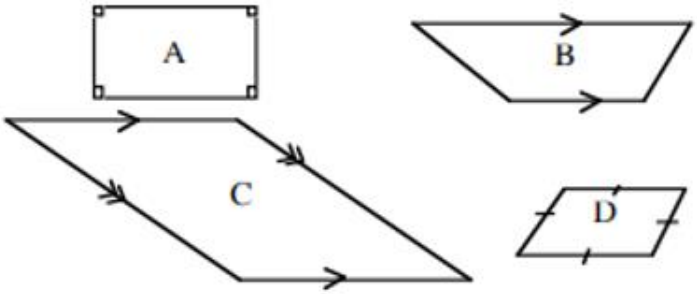
A. 1440 B. 2880

C. 4320 D. 5760

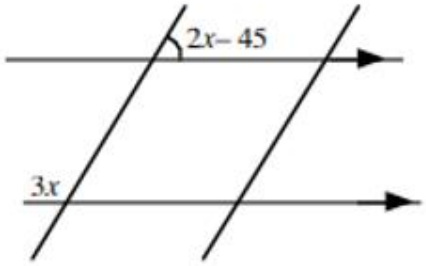
SM ASSESSMENT 6

Number Assessment

1. Which of the following figures is not a parallelogram?



2. What is the value of x?



A. 30^0 B. 45^0

C. 90^0 D. 180^0

3. In the expression $4x^2yz^3 + 2xyz^2$,

What is the highest common factor?

A. $4x^2yz^3$ B. $2xyz^2$

C. $8x^3y^2z^5$ D. $8xyz$

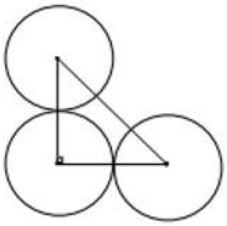
4. $x = 5$ and $y = 6$. What is $5y + 2(6x)$

5. A car uses 10 litres of petrol to travel 25 km. Calculate the amount of petrol in litres needed to travel 100 km.

SM Assessment 7

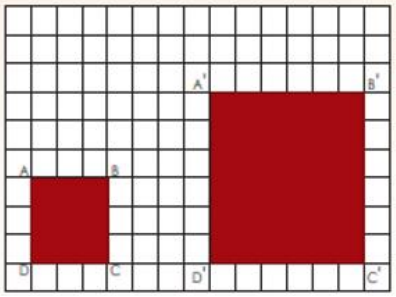
Number Assessment

2. The diagram shows 3 identical circles with a radius of 4 cm each.



Find the area of the triangle in cm^2?

3.



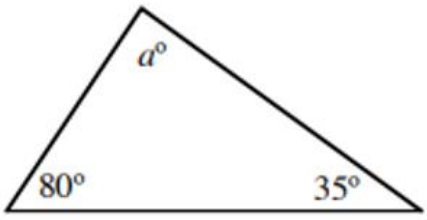
A'B' = (2) × AB 2 x 3 = 6

B'C' = (2) × BC ____ = ____

C'D' = (2) × CD ____ = ____

A'D' = (2) × AD ____ = ____

5. Find the value of angle *a* in the triangle below.

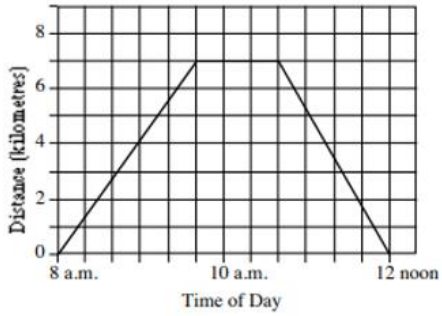


Number

SM Assessment 8

Assessment

1. The travel graph shows Loi's trip from his town to his village and back.



What was the total distance in km travelled by Loi?

2. The table below shows the number of students in Grade 8 in Asasha Primary School.

Class	number of boys	number of girls
8 A	20	26
8 B	30	24

What is the total number of grade 8 students in the school?

3. Simplify $2 \times 2a^2 \times 2a^2$

A. $8a^2$ B. $2a^4$

C. $8a^6$ D. $8x^5$

4. $3x - 4 = 32$.

What is the value of x?

A. 12 B. 36

C. 84 D. 108

5. The diagram shows a regular pentagon.

What is the value of the angle x?

A. 1440 B. 360

C. 144 D. 72

SM Assessment 9

Number Assessment

1. John, Maria and Kiri shared some mangoes in the ratio. 4: 2: 1 respectively.

   What fraction of mangoes does Kiri receive?

   A. $\frac{1}{7}$ B. $\frac{2}{7}$

   C. $\frac{1}{3}$ D. $\frac{4}{7}$

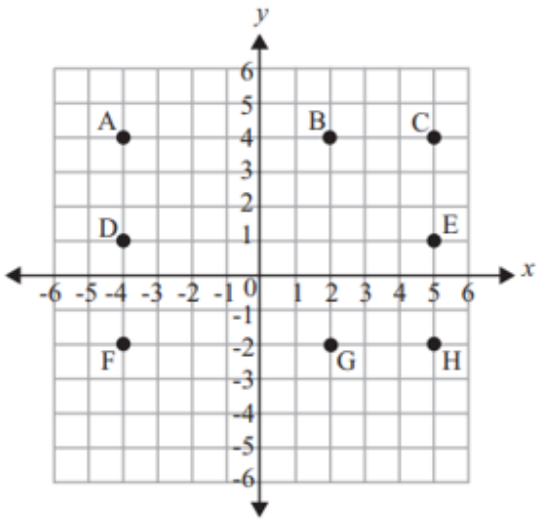
2. What is the equation used for the table below.

x	4	3	2	1	0	–1
y	5	3	1	–1	–3	–5

   A. $y = 2x - 3$ B. $y = 2 - 3x$

   C. $y = 2 + 3x$ D. $y = 2x + 3$

3. **Use the coordinate grid below to answer the question.**



   Which four points would be the vertices of a square?

   A. points A, B, G, F

   B. points A, C, E, D

   C. points B, C, H, G

   D. points A, C, H, F

4. The sum of a number, n, and 5 is subtracted from 8. Which expression represents this statement?

SM ASSESSMENT 10

2. Which is bigger: 13,2 or $\sqrt{163}$?
(Explain your answer.)

4. Given the following pattern: 2 6 12 20 30.

Determine the rule used to find the pattern.

Find the value of the 9th item in the pattern.

5. Simplify the following:

$$2x(3x^2 - 4x + 7) - 3x(2x^2 + 8x - 9)$$

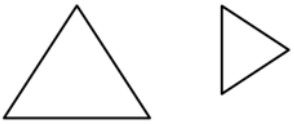
SM Assessment 11

Number Assessment

1. **MATCH**

Column A	Column B
6.2.1 Trapezium	A. Opposite sides parallel and equal
6.2.2. Rhombus	B. One set of sides parallel.
6.2.3. Parallelogram	C. Adjacent sides equal.
6.2.4. Kite	D. All sides equal and parallel, and all angles equal
6.2.5. Square	E. All sides equal and parallel.

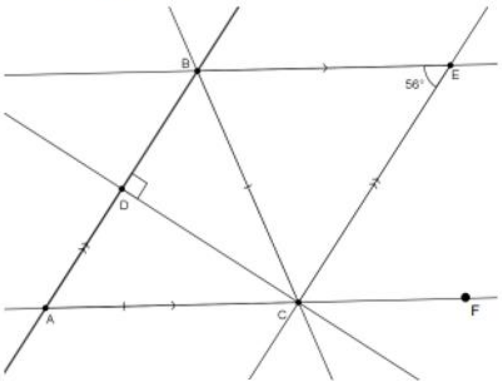
2. Say if the following pairs of shapes are similar or congruent or neither and give a reason for your answer.



3. What is the value of $D\hat{C}E$?

What is the value of $D\hat{C}A$?

Given that BE || AC, AB || CE, CD ⊥ AB and AC = BC.



SM Assessment 12

Number Assessment

1. Redraw the following table on your test paper and fill in the missing values: (6)

Fraction	Decimal	Percentage
$\frac{2}{3}$		
	0.65	
		82%

2. Look at the pictures and say how you feel when you get a problem to solve.

3. Subtract $-4x+8y+6$ from $2x+3y-1$

A. $x+8$ B. $6x-5y-7$ C. $-x^2+3x-2$ D. x^2-5y+8

4. 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.

5. If $x = -3$ and $y = 4$ find the value of:

$$x(3x+4y)$$

CONSOLIDATION (REVISION) ASSESSMENTS FOR THE END OF TERM

ASSESSMENT 1

1. Write these numbers as powers.

100 (1)

2. Write these square and cube numbers as natural numbers.

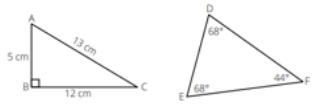
3^4 (1)

3. Determine the square roots.

$\sqrt{144}$ (1)

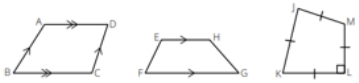
4. Lungile says that $3^2 = 6$. Is this correct? Explain your answer. (2)

5. Classify each of these triangles, giving reasons for your answers.



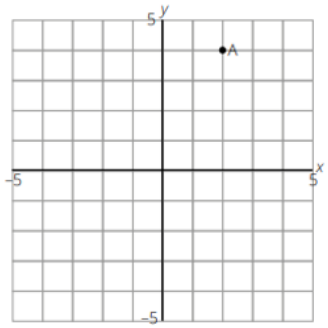
(4)

6. Classify each of these quadrilaterals, giving reasons for your answers. The sketches are not drawn to scale.



(6)

7. Copy this grid into your class workbook.



Reflect A:

a) in the x-axis and label its reflection A'. (2)

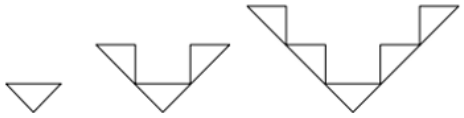
11. Simplify.

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

12. Solve for x.

$3x - 1 = 8$ (2)

13. Study the pattern and answer the questions.



Draw shape 4. (2)

14. Given the flow diagram, determine the general rule used to find the output values.

(3)

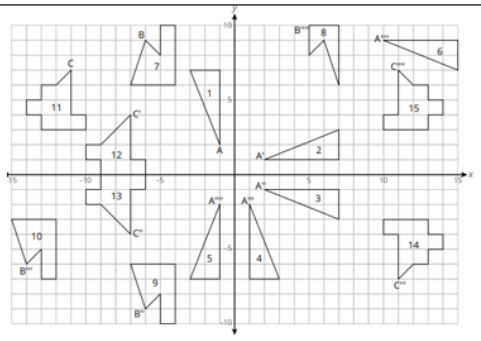
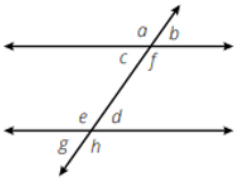
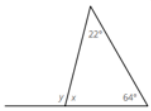
15. Is the statement true or false?

$8 - (5 \times 2) = (8 - 5) \times (8 - 2)$ (2)

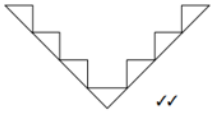
16. On a cold winter night, the temperature in Bloemfontein is −7 °C while the temperature in Johannesburg is −3 °C. What is the difference between the temperatures in the cities? (3)

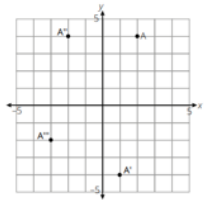
17. Determine if the following statements are true or false. Give reasons for your answers.

A square is a rectangle. (2)

8.	 Name five pairs of figures that are reflections in the *x*-axis. (5)	18.	Identify the relationship between the angles.  *a* and *f* (1)
9.	From the numbers 1, 3, 8, 15, 18, 23, 28 and 33 identify: two prime numbers (2) two numbers that are divisible by 4 (1)	19.	Determine the values of *x* and *y* in the diagram.  (5)
		20.	Calculate, without using a calculator. $4(x - 2) = 8$ (2)

MEMORANDUM

1.	10^2 ✓	11.	$3x^2y + 2x^2y$ $= 5x^2y$ ✓✓
2.	81 ✓	12.	$3x = 8 + 1$ ✓ $x = 3$ ✓
3.	12 ✓	13.	 ✓✓
4.	No ✓; $3^2 = 3 \times 3 = 9$ and $3 \times 2 = 6$ ✓	14.	The common difference is 3. ✓ Therefore, the general rule is $3x - 7$. ✓✓
5.	ΔABC is a right-angled scalene triangle ✓ because $\hat{B} = 90°$ ✓ and it has 3 unequal sides. ΔDEF is an acute-angled isosceles triangle with $\hat{D} = \hat{E} = 68°$ 3 and $\hat{F} = 44°$. ✓	15.	$8 - (5 \times 2) = (8 - 5) \times (8 - 2)$ $8 - 10 \neq 3 \times 6$ False ✓✓
6.	ABCD is a parallelogram because both pairs of opposite sides are parallel. ✓✓ EFGH is a trapezium because one pair of opposite sides is parallel. ✓✓ JKLM is a square because it is a rhombus with a right angle. ✓✓	16.	Difference in temperature is: −3 °C – (−7) °C ✓✓ = 4 °C. ✓

7.		17.	True. ✓ A square is a special type of rectangle because it has all the properties of a rectangle. ✓
8.	1 and 5 2 and 3 7 and 9 12 and 13 14 and 15	18.	Vertically opposite angles ✓
9.	3 ✓ and 23 ✓ 8 and 28 ✓	19.	$x + 22° + 64° = 180°$ (∠ sum of Δ) ✓ $x = 180° - 86°$ $x = 94°$ ✓ $y = 22 + 64°$ ✓ (ext. ∠ of Δ = sum of interior opposite angles) ✓ $y = 86°$ ✓ (∠ sum of Δ)
		20.	$x^2 \times x^2 \times x^4$ $= x^{2+2+4}$ $= x^8$ ✓

ASSESSMENT 2

2. Calculate the values of these powers.

5×2^4 (1)

3. Determine the cube roots.

$\sqrt[3]{8}$ (1)

4. From the numbers 1, 3, 8, 15, 18, 23, 28 and 33 identify:

two prime numbers (2)

11. Simplify.

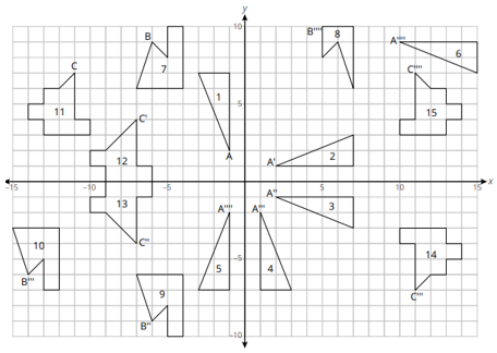
$2ac - 3cd + 4ac + 10cd$ (2)

12. Simplify the following.

$x^2 \times x^3 \times x^4$ (1)

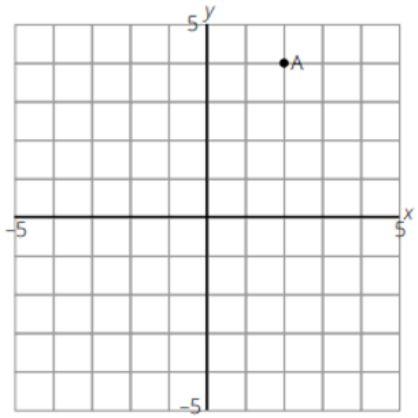
$x^2 \div x^3$ (1)

13.

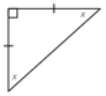
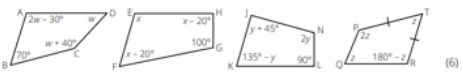
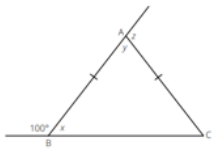
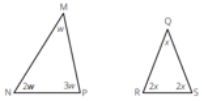


Name three pairs of figures that are reflections in the *y*-axis. In each case, state the coordinates of the points that are labelled. (9)

14. Copy this grid into your class workbook.

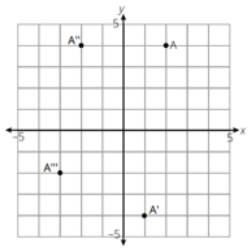


b) in the *y*- axis and label its reflection A*. (2)

5.	Determine the value of x.  (4)	15.	Calculate the values of w, x, y and z in each of these diagrams and classify the quadrilaterals. Give reasons for your answers. The diagrams have not been drawn to scale.  (6)
6.	Find the values of x, y and z.  (6)	16.	Calculate the values of w and x, then classify the triangle. Give reasons for your answers.  (10)
7.	Determine if the following statements are true or false. Give reasons for your answers. A parallelogram is a rhombus. (2)	17.	Simplify $10^3 - 10^2$. (2)
8.	Is the statement true or false? $3 - 5(3 + 9) = 3 \div (-5 \times 3) + (-5 \times 9)$ (2)	18.	Determine the square roots. $\sqrt{36}$ (1)
9.	Write the missing ouput values in the flow diagram.  (4)	19.	Write these square and cube numbers as natural numbers. 10^3 (1) 8^2 (1)
10.	Solve for x. $2(x + 2) = 22$ (2)	20.	Write these numbers as powers. 8 (1)

MEMORANDUM

		11.	$2ac - 3cd + 4ac + 10cd$ $= 6ac + 7cd$ ✓✓
2.	80 ✓	12.	$x^2 \times x^2 \times x^4$ $= x^{2+2+4}$ $= x^8$ ✓ $x^2 \div x^2$ $= x^{2-2}$ $= x^0$ $= 1$ ✓
3.	2 ✓	13.	4 and 5 $A''(1; -2) \rightarrow A'''(-1; -2)$ ✓ each pair, each coordinate and translated coordinate 7 and 8 $B(-6; 9) \rightarrow B'(6; -9)$ ✓ each pair, coordinate and translated coordinate 11 and 15 $C(-11; 7) \rightarrow C'''(11; 7)$ ✓ each pair, coordinate and translated coordinate

4.	3 ✓ and 23 ✓	14.	 Plotted on grid.
5.	$x + x + 90° = 180°$ ✓ (∠ sum of Δ) ✓ $2x = 180° - 90°$ ✓ $2x = 90°$ $x = 45°$ ✓	15.	$4w + 80° = 360°$ (∠ sum quad ABCD) ✓ $4w = 280° \Rightarrow w = 70°$ ✓ $\hat{A} = \hat{C} = 100°$ and $\hat{B} = \hat{D} = 70°$ ABCD is a parallelogram because it is a quadrilateral with both pairs of opposite angles equal. ✓✓ $3x + 60° = 360°$ (∠ sum quad EFGH) ✓ $3x = 300° \Rightarrow x = 100°$ ✓ $\hat{E}$ and $\hat{G} = 100°$ and $\hat{F} = \hat{H} = 80°$ ✓ EFGH is a parallelogram because it is a quadrilateral with both pairs of opposite angles equal. ✓✓ $2y + 270° = 360°$ (∠ sum quad JKLN) ✓ $2y = 90° \Rightarrow y = 45°$ ✓ $\hat{J} = \hat{K} = \hat{L} = \hat{N} = 90°$ ✓ JKLN is a rectangle because it is a quadrilateral with four right angles. ✓✓ $3z + 180° = 360° 3$ (∠ sum quad PQRT) ✓ $3z = 180° \Rightarrow z = 60°$ ✓ $\hat{P}$ and $\hat{R} = 120°$ and $\hat{Q} = \hat{T} = 60°$ ✓ PQRT is a parallelogram because it is a quadrilateral with both pairs of opposite angles equal. ✓✓
6.	$x = 180° - 100°$ $x = 80°$ (angles on a straight line) ✓✓ $y = 180° - (80° + 80°)$ (angles of a triangle) ✓ $y = 20°$ ✓ $z = 180° - 20°$ (angles on a straight line) ✓ $z = 160°$ ✓	16.	$6w = 180°$ (∠ sum ΔMNP) ✓ $\hat{M} = 30°$, ✓ $\hat{N} = 60°$ ✓ and $\hat{P} = 90°$ ✓ So, ΔMNP is a right-angled scalene triangle. ✓ $5x = 180°$ (∠ sum ΔQRS) ✓ $x = 36°$ ✓ $\hat{Q} = 30°$, ✓ $\hat{R} = \hat{S} = 72°$ ✓ So, ΔQRS is an acute-angled isosceles triangle. ✓
7.	False. ✓ A parallelogram has two unequal pairs of parallel sides, unlike a rhombus. ✓	17.	900 ✓✓
8.	$3 - 5(3 + 9) = 3 + (-5 \times 3) + (-5 \times 9)$ $-57 = -57$ True ✓✓	18.	6 ✓
9.	$2(1) \times 3 - 7 = -1$ ✓ $2(2) \times 3 - 7 = 5$ ✓ $2(5) \times 3 - 7 = 23$ ✓ $2(9) \times 3 - 7 = 47$ ✓	19.	1 000 ✓ 64 ✓
10.	$2x = 22 - 4$ ✓ $x = 9$ ✓	20.	2^3 ✓