Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Department van Onderwys
Porafensie Ya Kapa Botjahabela: Lefapha la Thuto

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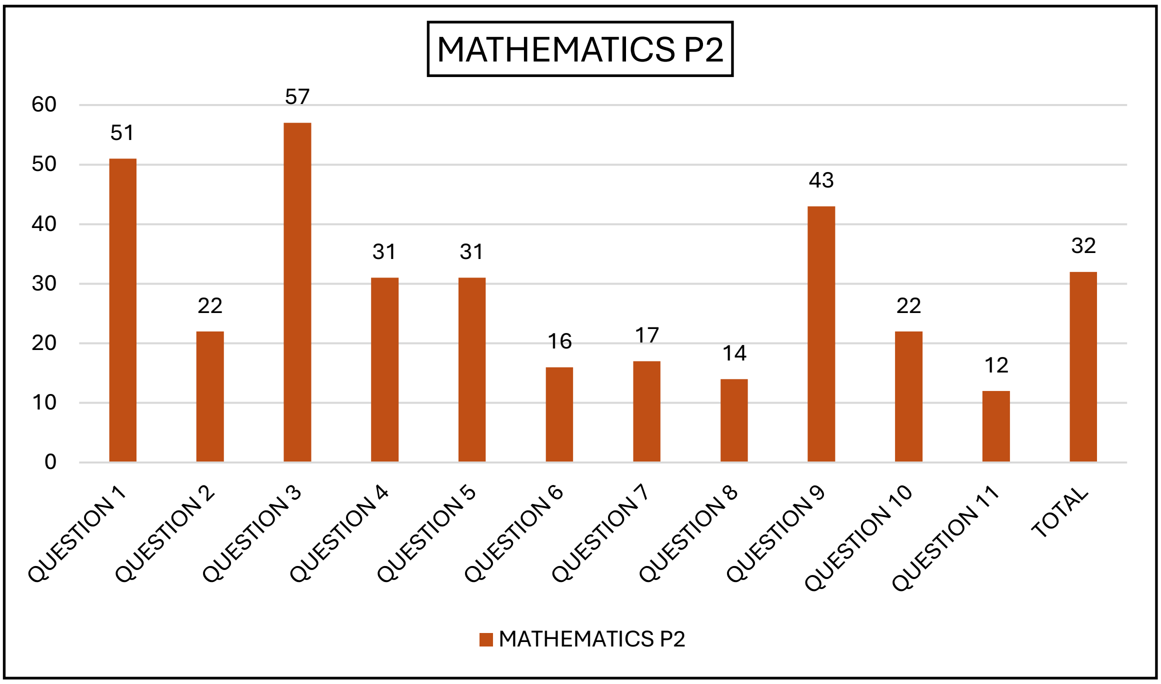
REPUBLIC OF SOUTH AFRICA, Website: www.ecdoe.gov.za

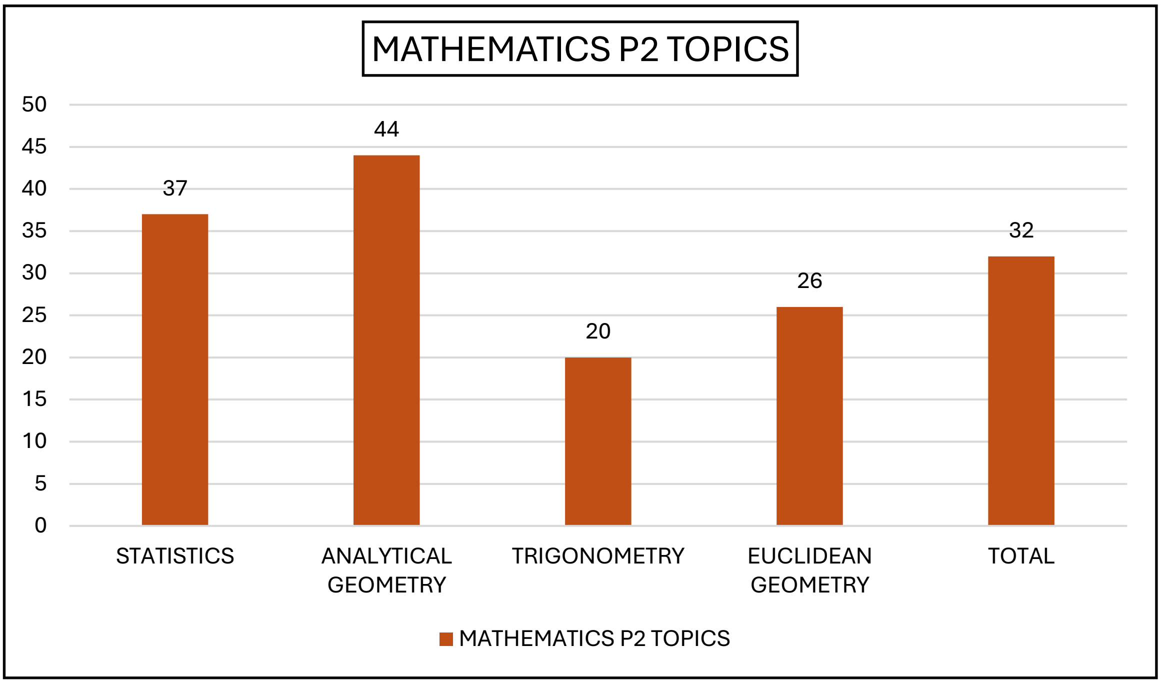
2025 NSC CHIEF MARKER'S REPORT

SUBJECT	**MATHEMATICS**
QUESTION PAPER	2
DURATION OF QUESTION PAPER	**3 HOURS**
PROVINCE	**EASTERN CAPE**
NAME OF THE INTERNAL MODERATOR	**SIMUKAI DANIEL MARANGE**
NAME OF THE CHIEF MARKER	**NONTOBEKO GABELANA**
DATES OF MARKING	**29 NOVEMBER – 12 DECEMBER 2025**
HEAD OF EXAMINATION:	**E.M MABONA**

SECTION 1: (General overview of Learner Performance in the question paper as a whole)



Based on 100 randomly selected scripts, the performance dropped from an average of 43% in 2024 to 32% in 2025. A total of four questions performed below 20%. The top performing question is Question 3, dealing with analytical geometry concepts taught in grade 10 and 11. The worst performed question is question 11, dealing with integration of circles and triangles. Question 9 with the formal theorem performed at 43%, a slight improvement from last year. Most candidates were able to prove the theorem.



Analytical Geometry is the only topic performed above 40%. Trigonometry was the worst performed topic with 20%. Euclidean Geometry improved from the previous year. Candidates performed well in question 9 and 10. The performance dropped in question 11. Candidates are failing Trigonometry and yet it is the topic with more marks in paper two. Statistics and Analytical Geometry usually perform above 60% in the previous years, however this year there was a huge drop.

SECTION 2: Comment on candidates' performance in individual questions

QUESTION 1

There were 11 cars of the same model for sale at a car dealership. The age (in years) of each car and its corresponding selling price (in rands) is provided in the table below.

AGE OF CAR (IN YEARS)	SELLING PRICE OF CAR (IN RAND)
2	293 000
3	265 000
3	256 000
4	219 000
4	241 000
4	246 000
6	226 000
6	176 000
7	154 000
7	180 000
8	148 000

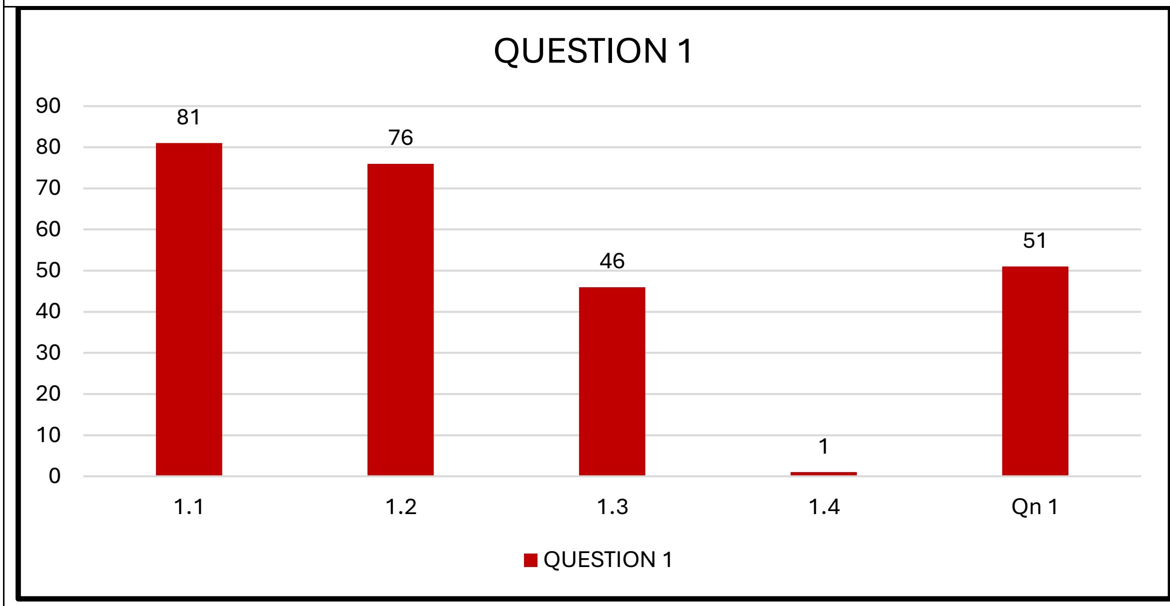
1.1 Determine the equation of the least squares regression line. (3)

1.2 Predict the selling price of a similar car at this car dealership that is 5 years old. (2)

1.3 Use the correlation coefficient to show whether the prediction made in QUESTION 1.2 is valid or not. (2)

1.4 Use the answer to QUESTION 1.1 to write down the estimated average yearly decrease in the selling price of these 11 cars. (1)

[8]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Question 1.1 was well answered. The candidates were able to use their calculators to get the least squares regression line. The concept is taught last in grade 12, which means candidates remembered well what they have been taught.

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Question 1.3, candidates assumed that if the correlation coefficient is negative then the prediction will be not valid. The misconception should be clarified that the validity depends on the absolute value of r. The positive or negative will assist with whether the variable will increase or decrease (direction). In **question 1.4**, the misconception was that candidates failed to link the value of b in the least squares regression line with the gradient. The gradient of a slope will indicate how the dependent variable will change.
Provide suggestions for improvement in relation to Teaching and Learning.
Data handling should be thoroughly taught, and terminology must be thoroughly explained to learners. The Examination guideline and CAPS must be used effectively to teach learners. Educators should avoid using previous question papers to teach the concepts of Data handling as they may skip concepts not examined that year.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
There are candidates who failed to use their calculators to obtain the least squares regression line. Substitution of the value of the independent to get the predicted dependent variable is still a challenge with some candidates. Learners should be exposed to calculator use and maximise the chance of getting more marks. In Statistics 45% of the marks can be obtained through the proper use of a calculator. Subject advisors must always include calculator use whenever they have content workshops with educators. Concepts of Statistics must be prepared and taught thoroughly. Consistent assessment of the concepts must be done on a regular basis. Educators should avoid using question paper to teach but to assess. There should be clear difference between teaching with past question papers and assessing using previous question papers.

QUESTION 2

2.1 The cumulative frequency table below shows the amount of time that people spent on a particular website on a certain day.

TIME, t (IN MINUTES)	CUMULATIVE FREQUENCY
$0 < t \leq 20$	16
$0 < t \leq 40$	40
$0 < t \leq 60$	59
$0 < t \leq 80$	67
$0 < t \leq 100$	70

2.1.1 How many people visited this website on that day? (1)

2.1.2 How many people spent more than 40 and up to 80 minutes on the website? (2)

2.1.3 Draw a histogram to represent the information provided in the cumulative frequency table. (3)

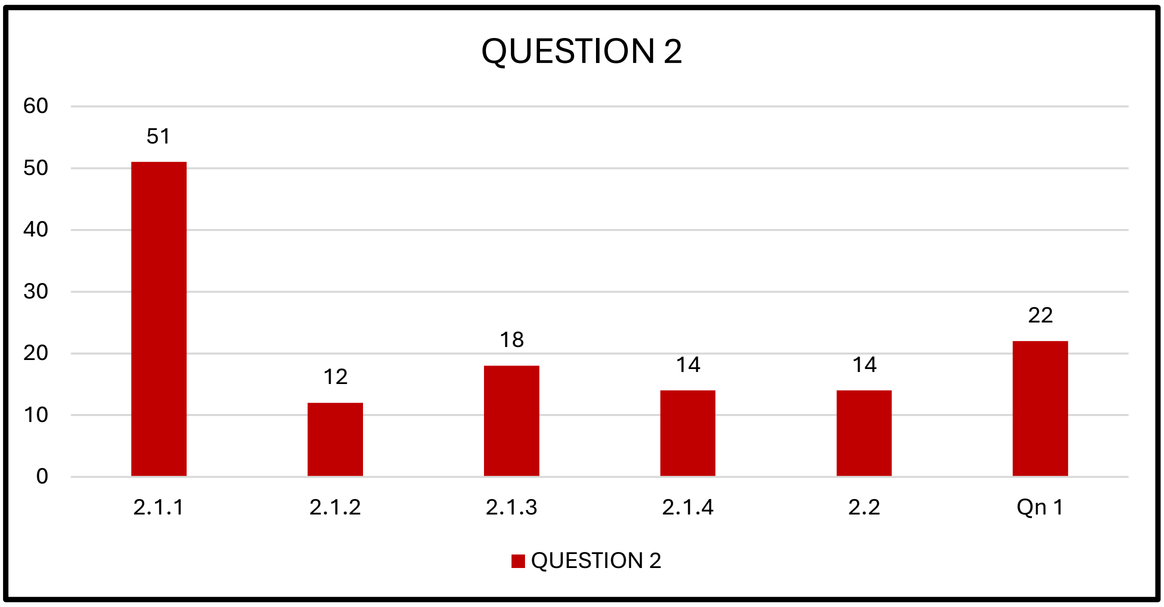
2.1.4 Comment on the skewness of the data. (1)

2.2 There are 9 players in a basketball team. The coach calculated that on average, each player scored 12 points during a game. The points scored by 8 of the 9 players from the team is given below:

11	14	19	20	8	10	2	14

How many players' points score was outside ONE standard deviation of the mean points score? (5)

[12]

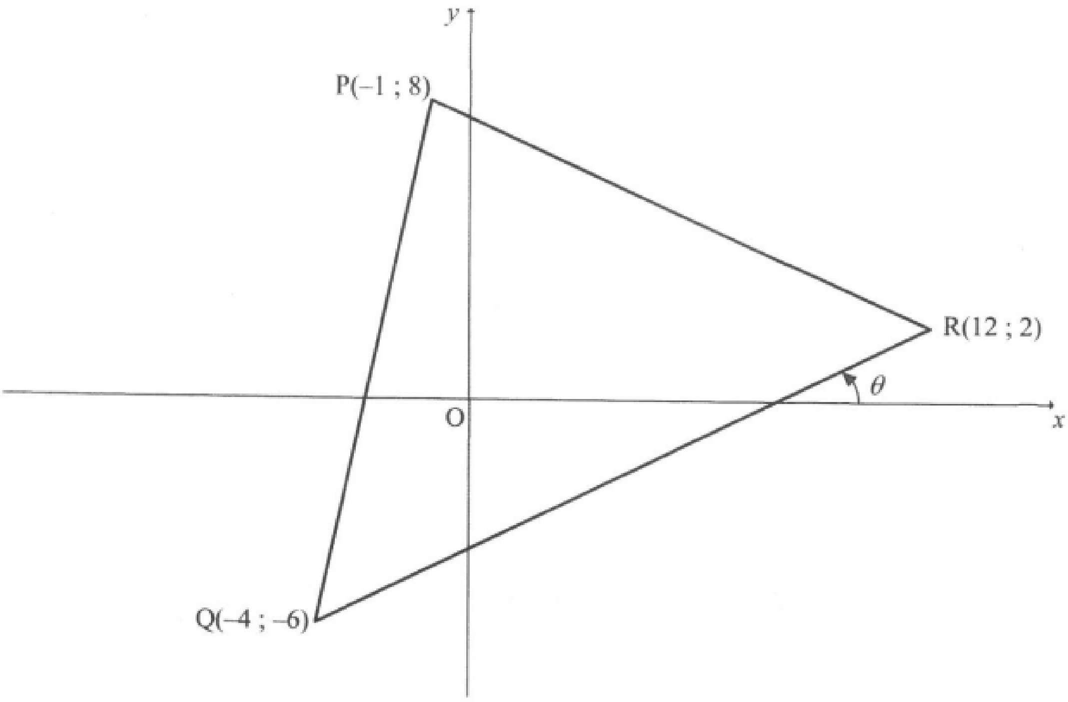


General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

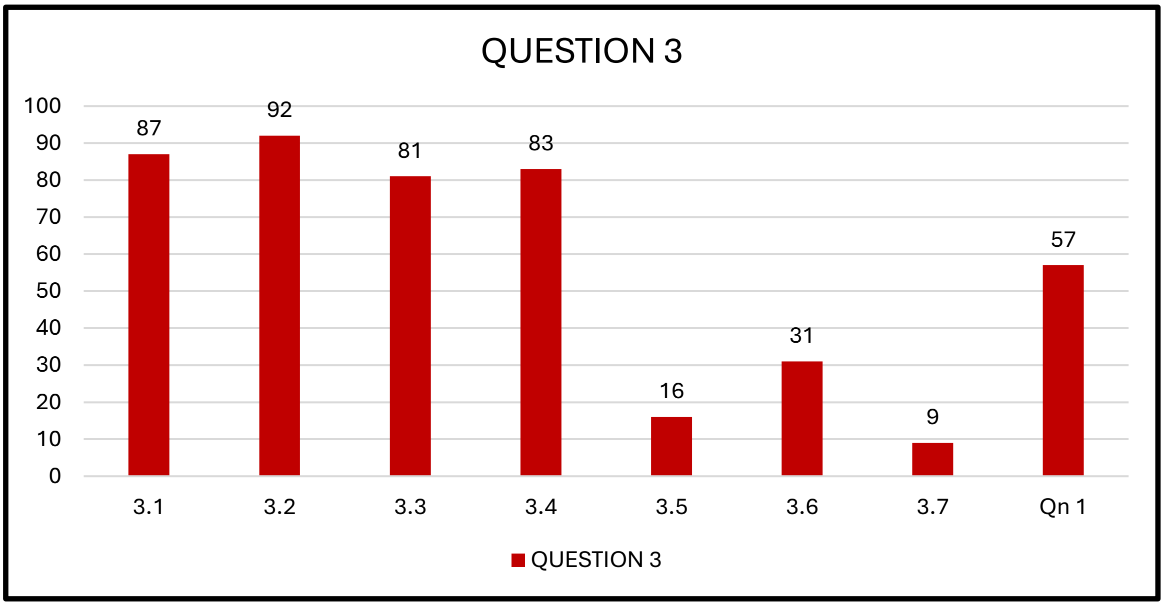
Question 2.1.1 was fairly answered. Candidates who took time to analyse the cumulative frequency table were able to answer the question well.
Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
The candidates failed to read with understanding and added the cumulative frequency as if they are frequencies for the specific class interval. The diagram sheet that was drawn up to 70 which made a confusion to the candidates to draw a cumulative frequency curve instead of a histogram. The skewness of data cannot be determined from cumulative frequency without referring to the box and whisker diagram. Candidates lost the mark since the answer depended on the diagram drawn in 2.1.3. Candidates who drew cumulative frequency lost one mark on 2.1.4 even if the answer was correct. In question 2.2, candidates failed realise that the score of the 9th player was supposed to be calculated first. Most candidates lost 3 marks because of the 9th score that was not calculated.
Provide suggestions for improvement in relation to Teaching and Learning.
The learners should be taught well in the concepts of drawing graphs in Data handling. In grade 12, educators must revisit the concepts taught in previous grades. The concepts taught in previous grades have a tendence of making learners to lose marks because the concepts were not thoroughly revised before learners write the examination. The issue of regular assessment should not be undermined. The learners need to be assessed regularly, and misconceptions corrected before they write examinations. Educators and learners should utilise the time after June examinations and trial examinations to revise thoroughly.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
The workshops that are done should focus more on concepts taught in grade 10 and 11. Educators must attend content gap workshops arranged by the subject advisors and teacher development, even if the school is performing. The workshops organised by teacher development are not for underperforming teachers only. Performing teachers should attend and share their methods of teaching and revising. Subject advisors must make sure that educators prepare thoroughly for the lesson and assessment is done on a regular basis. There should be remedial if the learners are not getting the concept well. Teaching using question papers should not encouraged.

QUESTION 3

In the diagram, P(–1 ; 8), Q(–4 ; –6) and R(12 ; 2) are the vertices of ΔPQR. The angle of inclination of QR is θ.



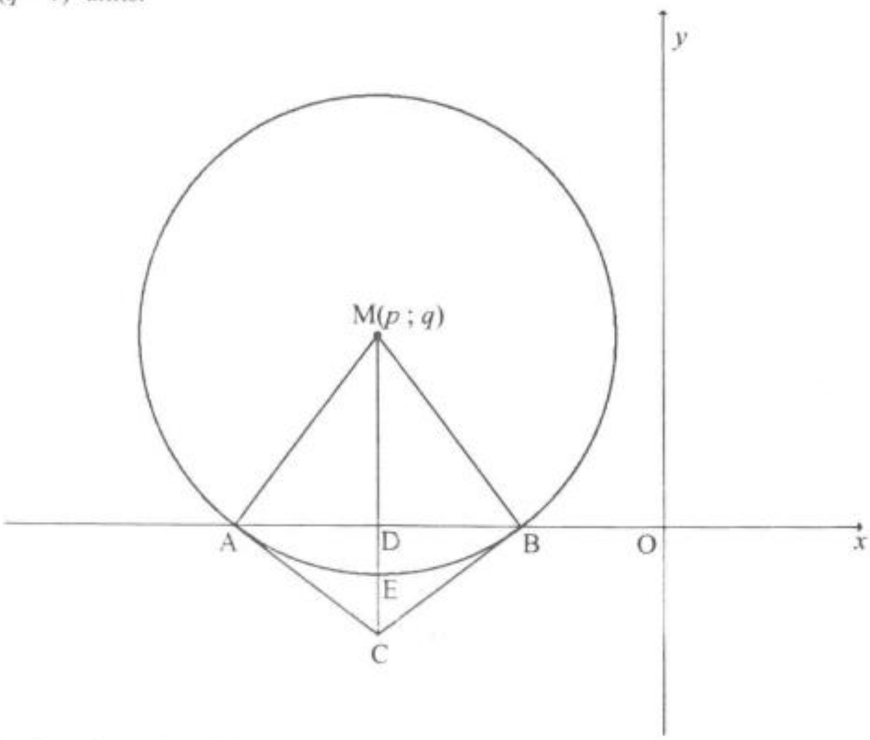
3.1	Calculate the length of QR. Leave your answer in simplified surd form.	(2)
3.2	Calculate the gradient of QR.	(2)
3.3	Calculate the size of θ.	(2)
3.4	Determine the equation of QR.	(2)
3.5	PQRS, in that order, is a parallelogram. Write down the coordinates of S.	(2)
3.6	T is a point on QR such that $PT \perp QR$. Calculate the coordinates of T.	(5)
3.7	Calculate the area of parallelogram PQRS.	(3)
		[18]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Question 3.1 to 3.4 were well answered. The concepts are taught in grade 10 and 11. The four sub questions performed above 80% with question 3.2 obtaining 92%. The concepts assessed substitution into the given formula, therefore candidates managed to use the information sheet well to obtain the correct answers.
Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Candidates failed to write down the coordinates of S for the parallelogram PQRS. The concept of quadrilaterals is taught in grade 10. Candidates assumed that T is a midpoint of QR, and they lost four marks because of that. Candidates lost marks because they failed to calculate the length of PT.
Provide suggestions for improvement in relation to Teaching and Learning.
The characteristics of quadrilaterals should be well addressed in grade 10 and educators must not take it for granted when teaching quadrilaterals in grade 10. Candidates should be reminded that concepts taught in grade 10 will be assessed in grade 12.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Learners should be encouraged not to assume answers as they will lose a lot of marks. Teachers should be encouraged to use technology to expose learners to the characteristics of quadrilaterals. Subject advisors must be encouraged to mediate the topics before the teachers teach them in schools. They can make use of 1 + 9 planning workshops to expose teachers to concepts that must be addressed. Teacher development must organise regular workshops so that teachers may be exposed to latest development in the subject and different ways a topic can be addressed.

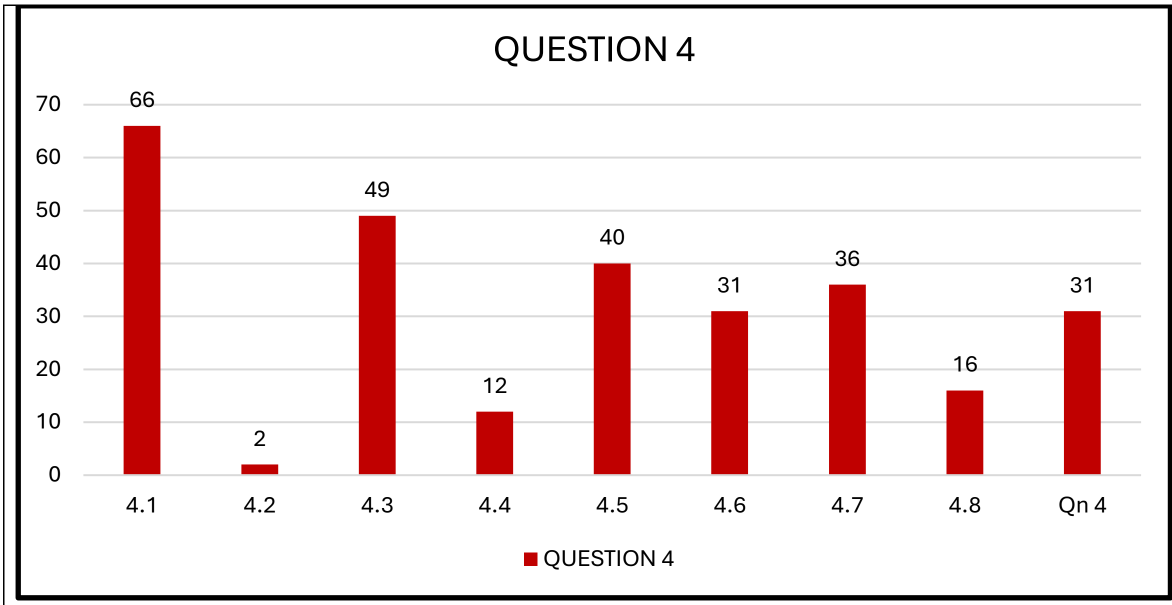
QUESTION 4

In the diagram, $M(p\ ;\ q)$ is the centre of the circle that intersects the x-axis at A and B. C is a point such that the line drawn from M to C is parallel to the y-axis and intersects the x-axis at D. MC intersects the circle at $E(-6\ ;\ -1)$. Tangents drawn from C touch the circle at A and B. $AD = (q-1)$ units.



4.1	Write down the value of p.	(1)
4.2	Show that $q = 4$.	(4)
4.3	Determine the equation of the circle in the form $(x-a)^2+(y-b)^2=r^2$.	(2)
4.4	If the circle is translated 2 units to the left, determine the minimum distance between the circle and the y-axis.	(1)
4.5	Calculate the coordinates of A and B.	(3)
4.6	Determine the equation of tangent BC.	(4)
4.7	Write down the coordinates of C.	(2)
4.8	Calculate the size of $A\hat{C}B$.	(4)

[21]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Question 4.1 was the only question that was well answered. It performed above 60%.
Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
The question was not well answered by most candidates. The question integrated Euclidean Geometry with Analytical Geometry, and it seems as the phobia they have in Euclidean Geometry affected their performance. The concept of vertical lines was not used effectively to get the value of p. Transformation of circles was not properly answered. Candidates failed to apply the concept of perpendicular lines, and they lost three marks because of that. Candidates lost marks in question 4.8 because they failed to use the concept of tangents from the same point are equal. Many candidates used the cosine rule, and they failed to substitute properly into the formula.
Provide suggestions for improvement in relation to Teaching and Learning.
Analytical Geometry is a topic where a lot of integration is happening, and educators must not teach the basic of concepts of the topic. They need to incorporate concepts from other topics and expose learners to different questions. More practice is needed in that regard. Regular assessment is needed. Candidates should be exposed to CONSISTENT ACCURACY marking principle. Many candidates lose marks because they do not answer questions that follow the questions they would have failed to answer.

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Educators must prepare thoroughly and cover all the basic concepts. Integration of other topics should be included during teaching of Analytical Geometry. Subject advisors must monitor and support teachers in FET band and make sure that the concepts taught in lower grades are adequately covered according to the annual teaching plan (ATP) and Examinations Guidelines. Teacher development must organise regular workshops so that teachers may be exposed to latest development in the subject and different ways a topic can be addressed.

QUESTION 5

5.1 It is given that $\tan 50° = k$. Express EACH of the following in terms of k:

5.1.1 $\cos 40°$ (2)

5.1.2 $\dfrac{2\sin 25°.\cos 25°}{-2+4\sin^2 25°}$ (5)

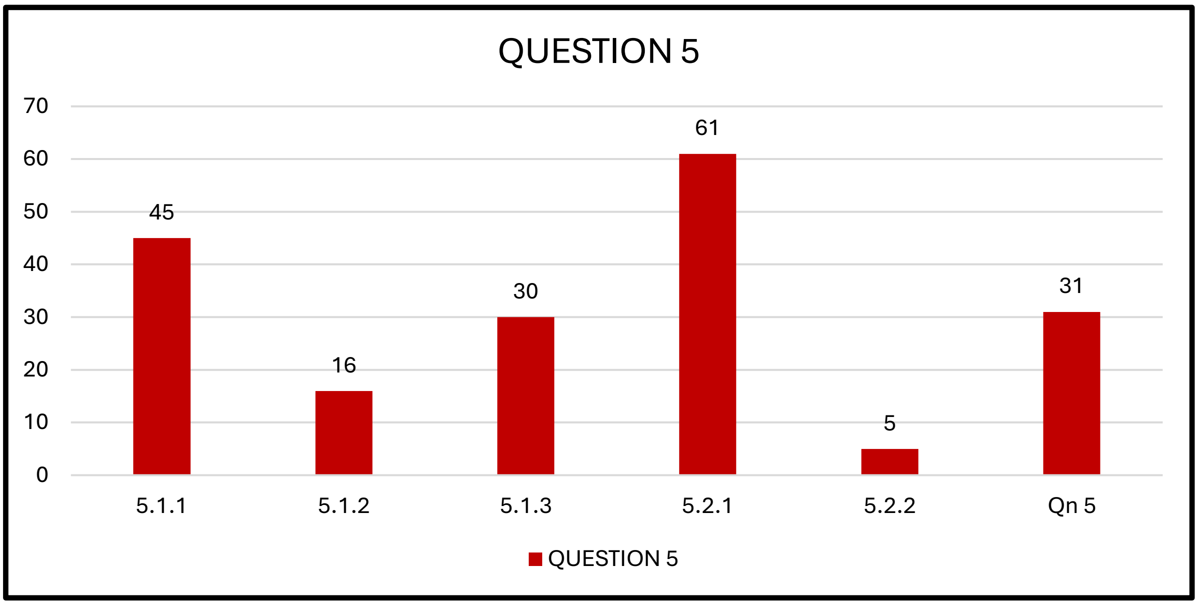
5.1.3 $\sin 10°$ (4)

5.2 Given: $\dfrac{\sin(540°+x).\cos(90°+x)}{\sin(-x)}$

5.2.1 Simplify the expression above fully to a single trigonometric ratio. (4)

5.2.2 Hence, determine the values of x in the interval $x \in [0°;360°]$ for which $\sqrt{\dfrac{\sin(540°+x).\cos(90°+x)}{\sin(-x)}}$ will be real. (2)

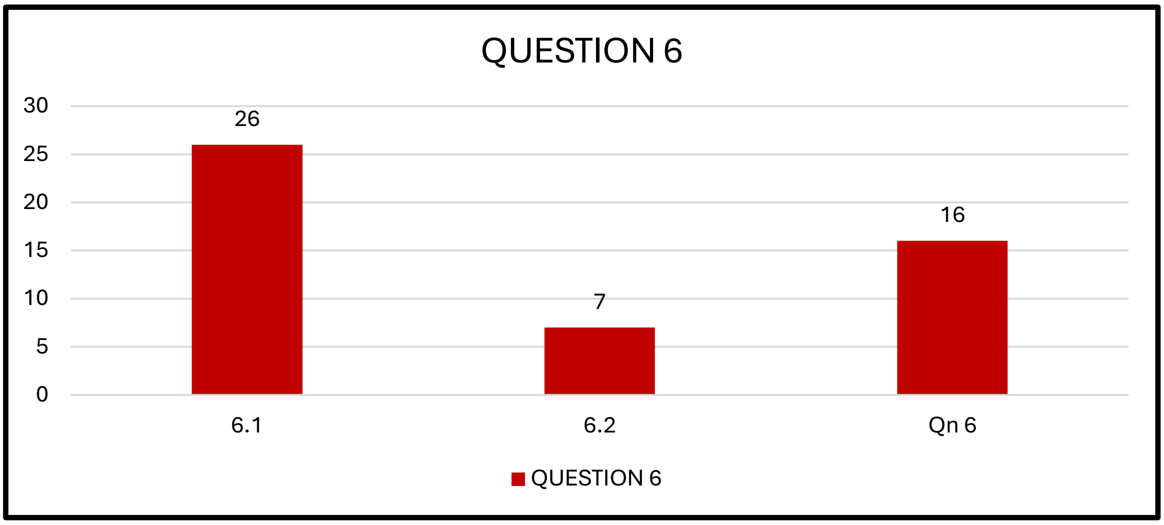
[17]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Question 5.2.1 was well answered by many candidates. Candidates were able to reduce the trigonometric expression to a single trigonometric ratio.
Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Candidates failed to answer trigonometric ratios. Although, they were able to get the correct ratio of tan50, some failed to use that to get the value of r. Candidates failed to apply double angle formulae to simplify the expression in question 5.1.2. Some of the candidates lost one mark in question 5.2.2 because of the notation in the answer which included the limits. The original expression had a variable in the denominator and therefore the critical values were not included in the final answer. Candidates failed to use the two given angles to get $\sin 10^0$.
Provide suggestions for improvement in relation to Teaching and Learning.
Teachers should make sure candidates are exposed to higher order questions during teaching. Practice should be done on a regular basis and if the angle asked is not in the diagram, learners must be encouraged to use special angles. Trigonometry carries more marks in paper two and more time should be dedicated to the topic during teaching and learning. Teachers must not treat March Controlled test in term one as examination period. That time must be utilised to teach the trigonometric concepts.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Candidates score marks through CA marking and therefore learners must be exposed to the marking principle so that they do not leave questions unanswered. Educators must thoroughly prepare and teach the topic. The theorem of Pythagoras must be emphasized to candidates. The diagram should be drawn in the correct quadrant. Subject advisors must make sure teachers utilise the time after controlled test in March to finish up Trigonometry. Teacher development is encouraged to organise the content workshops to address the content gap that teachers might have.

QUESTION 6

6.1	Prove that: $\left[\tan\left(180^\circ - x\right)\right]\left(1-\cos^2 x\right)+\cos^2 x = \dfrac{\left(\sin x - \cos x\right)\left(1+\sin x.\cos x\right)}{-\cos x}$	(6)
6.2	It is given that $\sin^2 x$; $\cos^2 x$ and $\frac{1}{2}\sin 2x$ are the first three terms of an arithmetic sequence. The constant difference of the arithmetic sequence is NOT zero. Determine the general solution for x.	(7)
		[13]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Question 6 was poorly answered. Both sub questions were less than 30% in terms of performance.

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

The integration of arithmetic sequence in trigonometry caused candidates to lose marks. Candidates failed to use the properties of arithmetic sequence to generate a trigonometric equation. There are some candidates who lost marks because they did not reject 45^0 as a solution.

Provide suggestions for improvement in relation to Teaching and Learning.

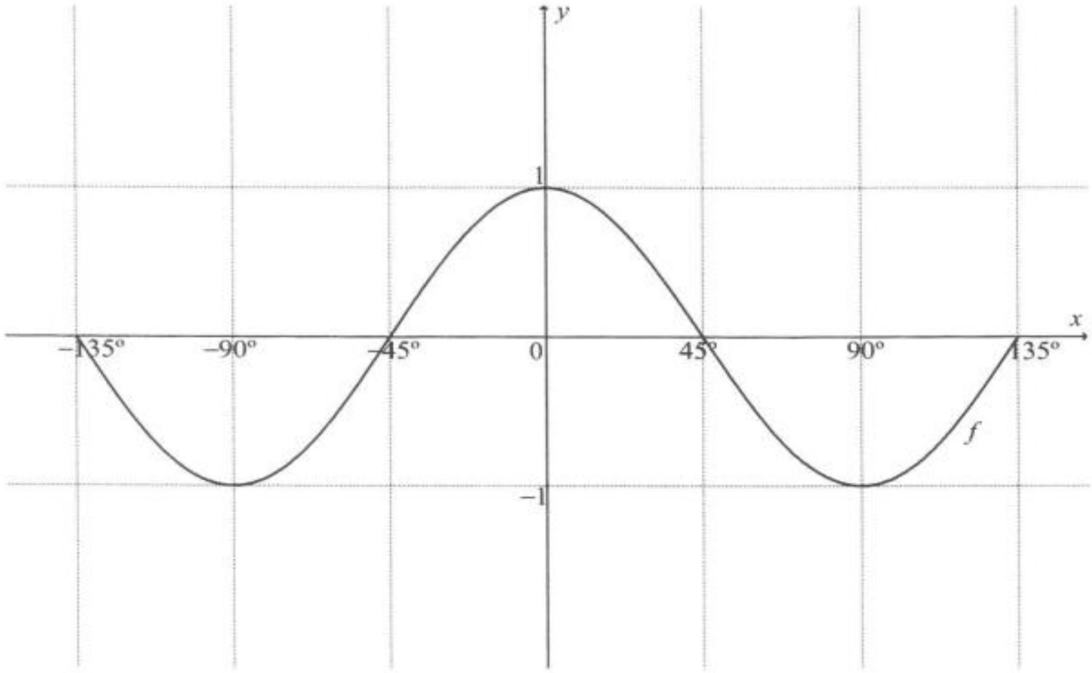
Educators should not teach the basic concepts only. They must include integration from other topics so that candidates will be prepared for examinations.

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

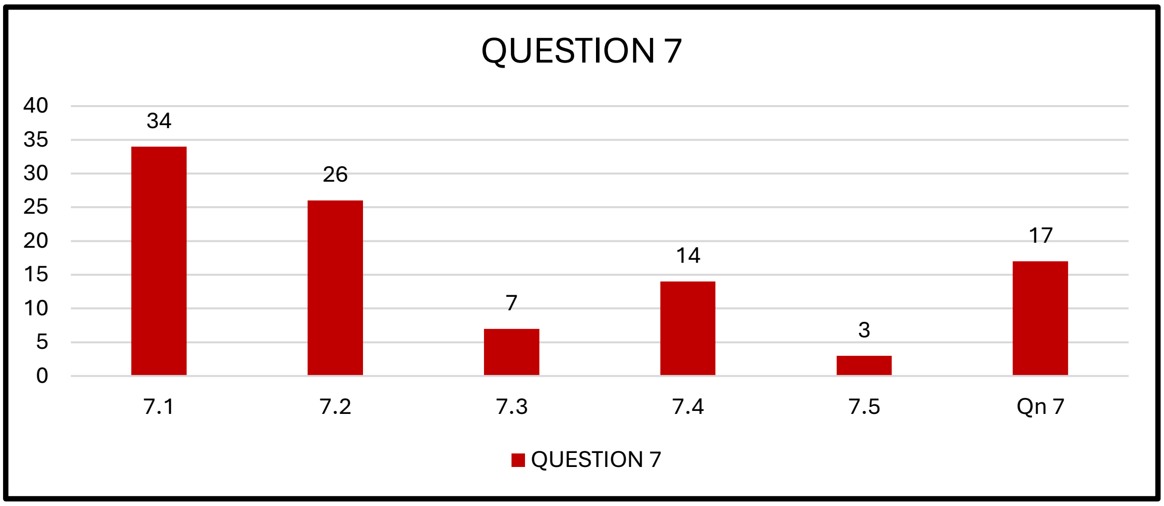
Trigonometry should be taught during the middle of the term, not towards the end of term as March Controlled test tend to disturb teaching and learning.

QUESTION 7

In the diagram, the graph of $f(x) = \cos 2x$ is drawn for $x \in [-135° ; 135°]$.



7.1	Write down the period of f.	(1)
7.2	On the set of axes provided in the ANSWER BOOK, draw the graph of $g(x) = \tan 2x - 1$ for $x \in [-135° ; 135°]$.	(3)
7.3	Graph f is translated 45° to the left to form graph h. Determine the equation of h in its simplest form.	(1)
7.4	Write down the range of h.	(1)
7.5	Determine the values of x for which $(1 - \tan 2x)(\cos 2x) \geq 0$ in the interval $x \in [0° ; 135°]$.	(4)
		[10]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

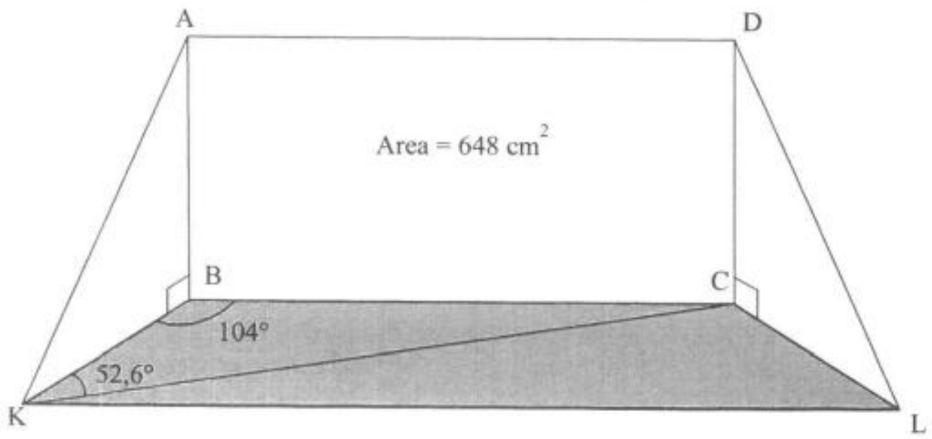
Candidates were able to the first question sub question well.

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Candidates failed to draw the graph of tangent. Transformation of graphs was a challenge to most candidates. Candidates wrote the equation of h as $h(x) = cos2x + 45$ instead of the correct answer as $h(x) = cos2(x + 45) = cos(2x + 90°)$. The range of $h(x)$ depended on the answer in question 7.3 and many candidates failed to get the mark because they failed to understand the transformation of trigonometric graphs. Candidates failed to manipulate the given inequality expression and link it to graphs drawn in question 7.2.
Provide suggestions for improvement in relation to Teaching and Learning.
Technology must be infused in teaching and learning so that applets like Geogebra can be used to expose learners to transformation of trigonometric graphs. Teachers must make sure that learners are provided with diagram grid when teaching trigonometric graphs. This will assist in learners mastering the shape of trigonometric graphs. The use of a calculator must be encouraged during teaching and learning. Learners must have their own calculators and not rely on borrowing from other learners in lower grades.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
The teachers must prepare thoroughly for the trigonometric graphs. Subject advisors should make sure that teachers cover all the concepts of Trigonometry, and they must utilise the time after controlled test, June examination and trial examinations to revise Trigonometry. Learners must be reminded that Trigonometry carries more marks in paper two and therefore more time should be spent revising the topic.

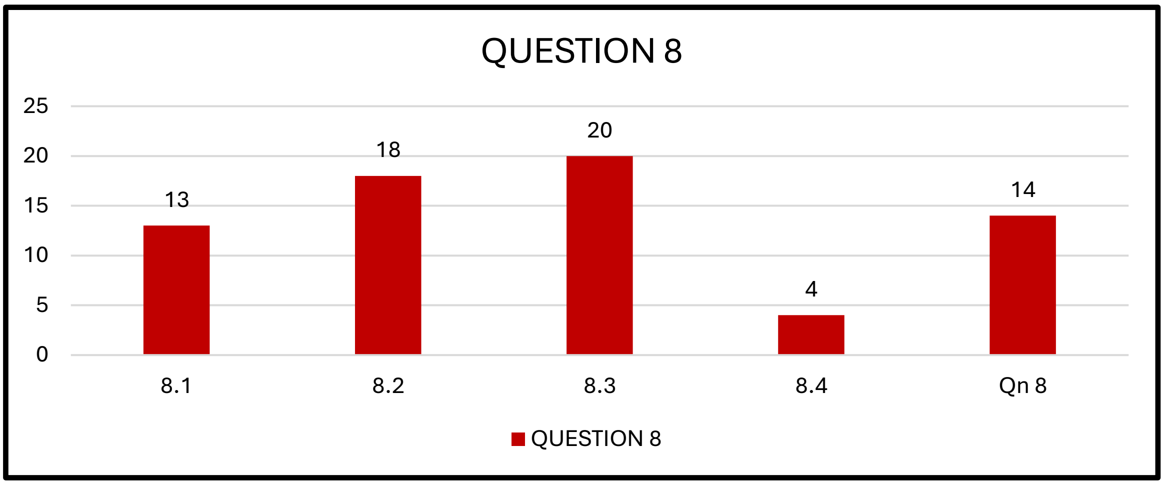
QUESTION 8

As part of a school project, learners are required to design a portable stage for a puppet show, as shown in the diagram below. The design must fulfil the following requirements:

- BKLC is a horizontal base having $K\hat{B}C = 104°$ and $B\hat{K}C = 52,6°$.
- The rectangular backdrop, ABCD, is vertical to the horizontal base and must have an area of $648\ cm^2$.
- The sides of ABCD must be in the ratio AB : BC = 1 : 2.
- The stage must be partly enclosed with triangular sides ABK and DCL.



8.1	Show that AB = 18 cm.	(2)
8.2	Calculate the length of AC.	(2)
8.3	Calculate the length of diagonal KC.	(2)
8.4	If AB = BK, calculate the size of $K\hat{A}C$.	(4)
		[10]

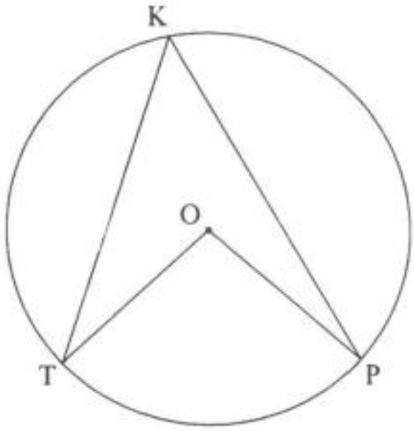


General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Candidates managed to get some marks in question 8.3. Question 8.4 was poorly answered.
Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
Candidates assumed that AB is 18 instead of using the given ratio to show that AB = 18 cm. In question 8.4 candidates failed to use cosine rule to get the required angle. They are using sine rule and assumed that the angle $K\hat{A}C$ is made up of $K\hat{A}B$ and $B\hat{A}C$.

Provide suggestions for improvement in relation to Teaching and Learning.
Learners should be encouraged to avoid using the given value if the question instruct them to show. Application of concepts taught in other topics should be assessed when teaching trigonometric rules. Learners should be encouraged to read the given statement and link it with the diagram. Assessment should be encouraged during teaching and learning of the trigonometric rules. Educators must make sure that revision is done thoroughly after teaching trigonometric rules.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
The characteristics of rectangle was not applied by some candidates. Candidates failed to identify the correct triangles. Teachers must make sure that the trigonometric rules are taught well and integration of other topics should be part of teaching trigonometric rules. Subject advisors must monitor and support teachers who are having challenges with trigonometric rules. 1 + 9 planning workshops should be utilised to assist teachers to prepare the topic well. Teacher development should work with subject advisors to develop teachers who are struggling trigonometric rules. Previous question papers should be used to assess learners and prepare them thoroughly for the examination. Topic tests with higher order question should be used to track learners' performance. Learners who are struggling with trigonometric rules should be encouraged revise thoroughly.

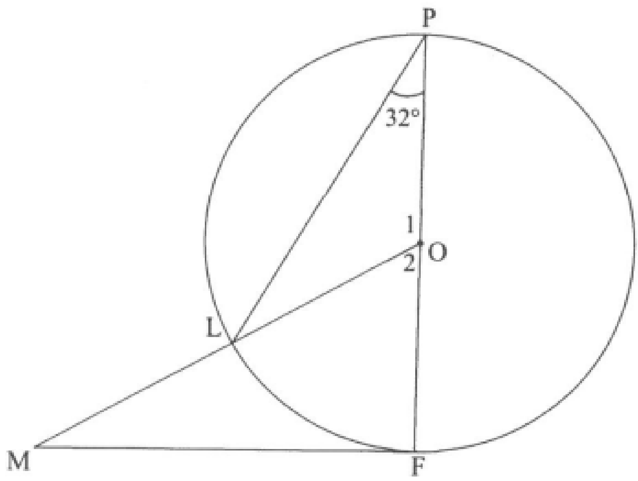
QUESTION 9

9.1 In the diagram, O is the centre of the circle. K, T and P lie on the circle.



Use the diagram above to prove the theorem which states that the angle subtended by a chord (or arc) at the centre of the circle is equal to twice the angle subtended by the same chord (or arc) at the circumference, that is prove that $T\hat{O}P = 2\,T\hat{K}P$. (5)

9.2 In the diagram, O is the centre of the circle. POF is the diameter of the circle and MF is a tangent to the circle at F. OM cuts the circle at L. $\hat{P} = 32°$.

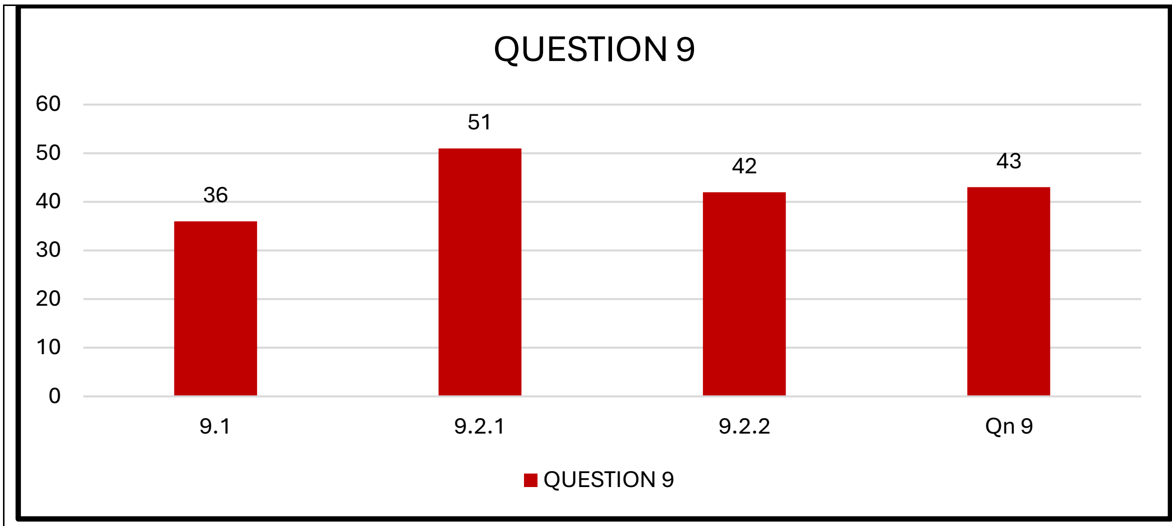


Calculate, with reasons, the size of:

9.2.1 $\hat{O}_2$ (2)

9.2.2 $\hat{M}$ (3)

[10]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Question 9.2 was well answered. The formal proof was fairly answered.

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

In **question 9.1** candidates lost marks because of construction or partial construction. The candidates had misconception of the reason tangent perpendicular to the diameter. They were writing tan – chord theorem. The candidates lost marks for writing isosceles triangles instead of writing angles opposite equal sides.

Provide suggestions for improvement in relation to Teaching and Learning.

Proving a formal proof must be thoroughly addressed as many candidates lose marks because of partial construction or no construction. Remind learners that all formal proofs must have construction. Learners should be drilled to get full marks when proving formal proofs.

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

Candidates ignored the bold statement written on page 10 that instructed candidates to **PROVIDE REASONS FOR STATEMENTS IN QUESTION 9, 10 AND 11**.

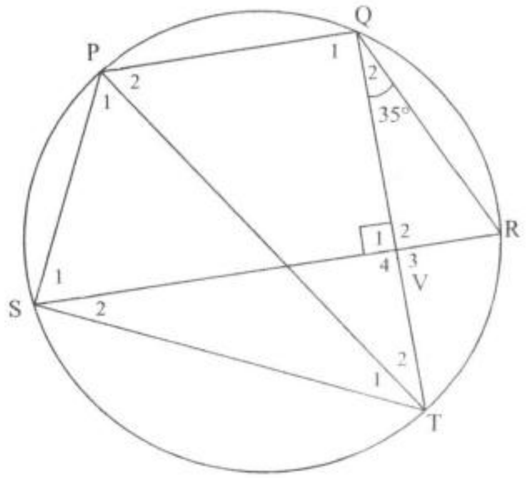
Subject advisors must monitor and support teachers so that Euclidean Geometry is properly taught and there is time for revision.

Teacher development must organise workshops to address the misconception that picked up by learners.

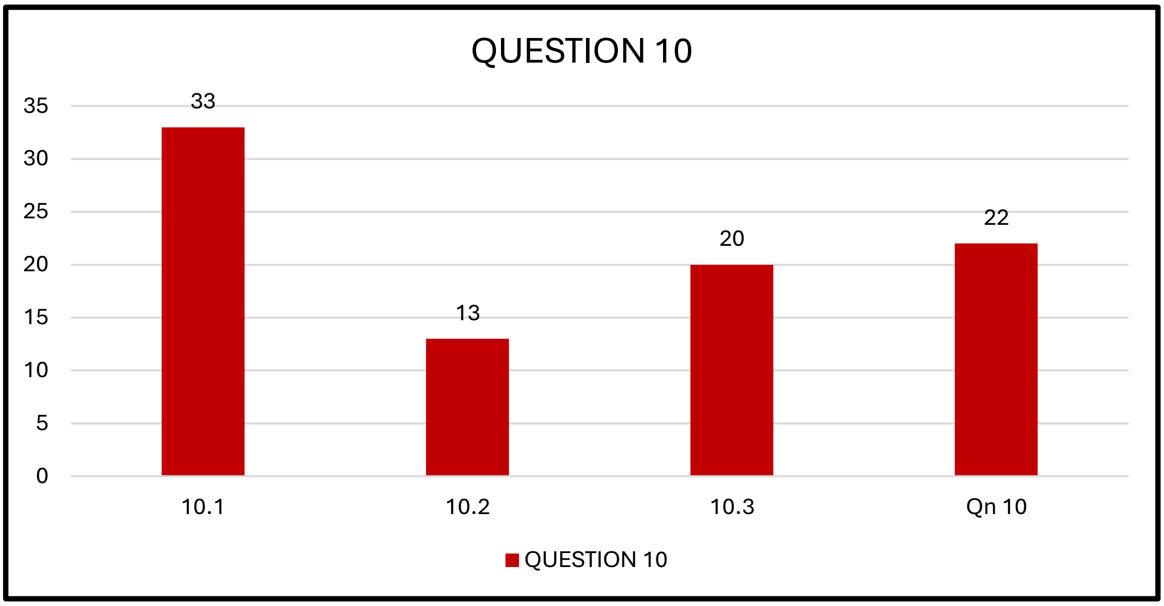
Proving of formal theorems should be part of assessment when administering topic tests. Educators are encouraged to use diagrams sheets when candidates are proving formal theorems.

QUESTION 10

In the diagram, PQRS is a cyclic quadrilateral. T is a point on the circle such that QT is perpendicular to SR at V. PT and ST are drawn. $\hat{Q}_2 = 35°$ and $\hat{R} = \hat{S}_1$.



10.1	Calculate, with reasons, the size of $Q\hat{T}S$.	(3)
10.2	Prove that PQ ‖ SR.	(3)
10.3	Prove that PT is a diameter of the circle.	(2)
		[8]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Question 10.1 was well answered by most candidates. The performance was poor in **question 10.3 and 10.4.**

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

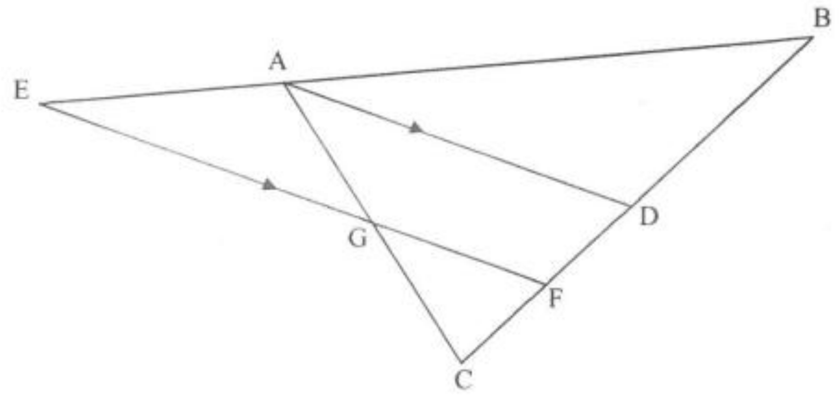
Candidates are losing marks for writing converse of co interior angles. The word converse is used in proving theorems for example when proving that PT is a diameter the reason can have the word converse. There are candidates who assumed that $P\hat{S}T = 90°$ without calculating R$\hat{S}$T first.

Provide suggestions for improvement in relation to Teaching and Learning.
When teaching Euclidean Geometry learners should be encouraged to indicate the angles that are given or angles that have been calculated before. Candidates should use the diagram sheet in the **ANSWER BOOK** not in the **QUESTION PAPER**.

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
The misconception of writing **CONVERSE CO INTERIOR ANGLES** should be addressed during teaching and learning. Teachers should make sure that questions that have integral angles are mastered by learners before they write examinations. Subject advisors must make sure that teachers do not waste teaching grade 11 content instead of grade 12 content. **THE TIME ALLOCATED ON ANNUAL TEACHING PLAN FOR GRADE 12 IS FOR TEACHING GRADE 12 CONTENT NOT GRADE 11.**

QUESTION 11

11.1 In the diagram, ΔABC is drawn. BA is produced to E. F and D are points on BC such that AD || EF. AC and EF intersect at G. $\frac{CF}{FB} = \frac{2}{5}$ and $\frac{CG}{GA} = \frac{3}{2}$.



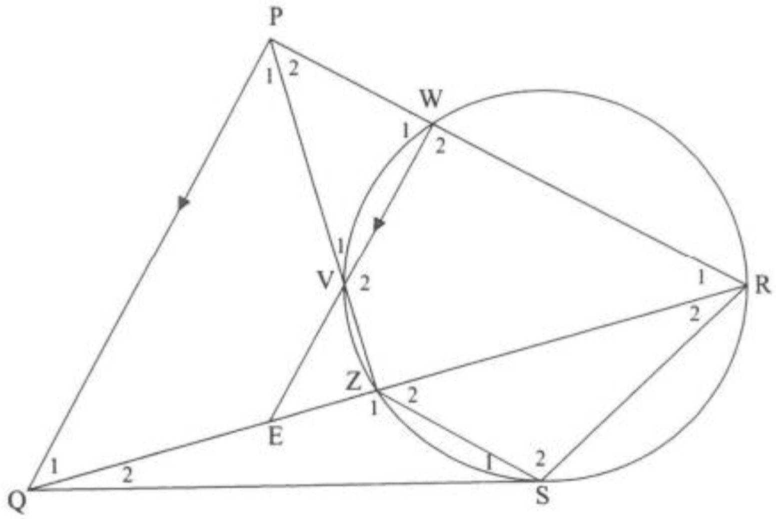
Calculate, with reasons, the value of:

11.1.1 $\frac{FD}{CF}$ (2)

11.1.2 $\frac{BA}{EA}$ (4)

11.1.3 $\frac{\text{Area of } \Delta GCF}{\text{Area of GFDA}}$ (4)

11.2 In the diagram, WVZR is a cyclic quadrilateral. RZ is produced to Q. A tangent is drawn from Q to touch the circle at S. WV is produced to E, a point on ZQ. RW produced meets ZV produced in P. PQ || WE. RS and ZS are drawn.



Prove, with reasons, that:

11.2.1 $PR = \dfrac{PW.QR}{QE}$ (2)

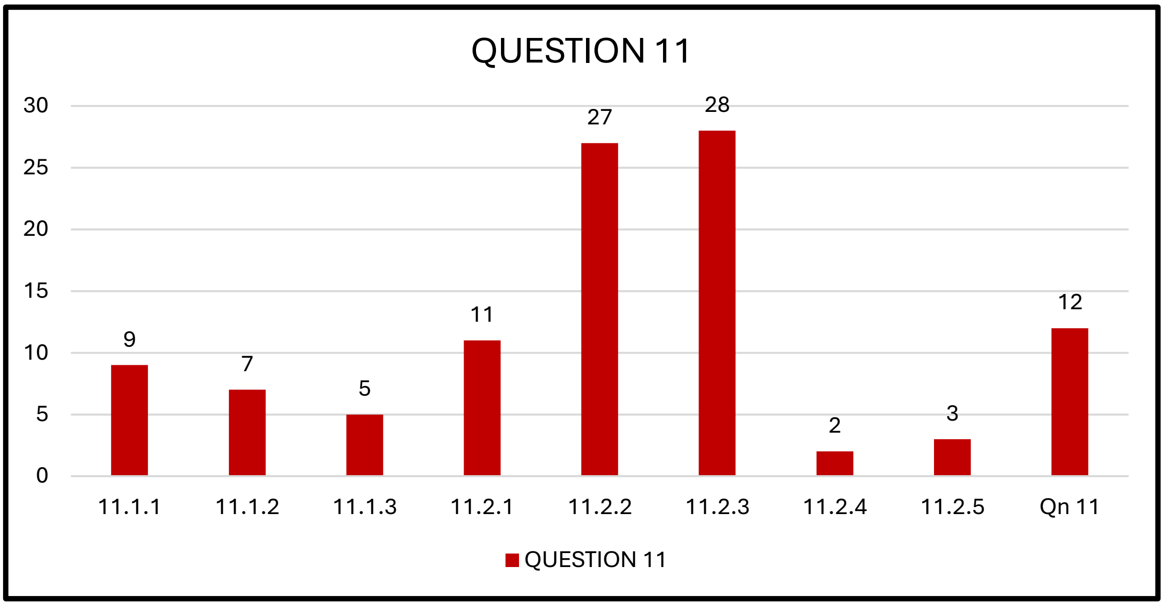
11.2.2 If $\Delta PQZ \,|||\, \Delta RQP$, then $PQ^2 = RQ.QZ$ (1)

11.2.3 $\Delta QSZ \,|||\, \Delta QRS$ (3)

11.2.4 $PQ = QS$ (3)

11.2.5 $PW = \dfrac{QE.PZ}{\sqrt{QR.QZ}}$ (4)

[23]



General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

All the sub questions were poorly answered.

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
The candidates failed to use the given ratio to calculate the ratio $\frac{FD}{CF}$ in question 11.1.1 and $\frac{BA}{EA}$ in **question 11.1.2.** There are candidates assumed that the height of the triangle and trapezium were equal. The integration of circles and triangles is a challenge to many candidates. Some candidates did not attempt the question at all. In **question 11.2.3**, some candidates wrote wrong reasons and therefore lost two marks.
Provide suggestions for improvement in relation to Teaching and Learning.
Integration of circles and triangles is higher question, and it must be explained to learners during teaching and learning. The use of previous question papers to assess learners is highly recommended. Educators are encouraged to use Geogebra applet to teach learners. There should be regular assessment of difficult topics. Revision of concepts that will make learners score marks is highly recommended. Basic proportional theorem should be emphasized, and educators are encouraged to use highlighters when teaching proportional theorem. Regular assessment can not be ignored. Topic tests should be administered, and all misconception must be addressed.
Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.
Grade 11 Euclidean Geometry should not be taught during the time allocated for Grade 12 Euclidean Geometry. Educators should make sure that learners are provided with the acceptable reasons from Examination Guidelines and they need to use them starting in grade 10 or 11. Subject advisors must check if learners have the acceptable reasons pasted in the workbooks. The teacher development should organise content gap workshops to address the misconceptions of Euclidean Geometry.