

NOVEMBER 2017

GRADE 10 MATHEMATICS PAPER 2

ADDITIONAL NOTES TO MEMORANDUM

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt that has not been scratched out.
- Consistent accuracy (CA) applies in ALL aspects of the marking memorandum.
- BD implies mathematical breakdown and no further marking

LET WEL:

- *Indien 'n kandidaat 'n vraag TWEE keer beantwoord, sien slegs die EERSTE poging na wat nie deurgehaal is nie.*
- *Volgehoue akkuraatheid is op ALLE aspekte van die memorandum van toepassing.*
- *BD beteken "break down" en geen verder nasien*

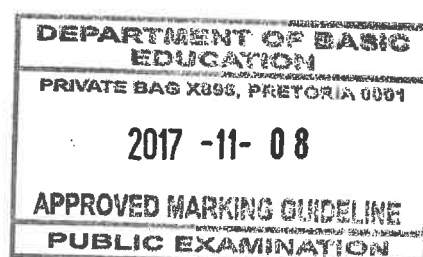
ONCE A CANDIDATE HAS REACHED 2 ERRORS RELATED TO MARKS: STOP MARKING.

QUESTION/VRAAG 1

1.1	Answer only: 2/2 marks
1.2	<ul style="list-style-type: none">• Answer only: 2/2 marks• CA from 1.1.1 only if 34 or 90 are left out of ordered list
1.3	<ul style="list-style-type: none">• Answer only 3/3 marks• CA from 1.1.1 only if an item is left out of ordered list
1.4	<ul style="list-style-type: none">• CA from 1.2 and 1.3

QUESTION/VRAAG 2

2.2	<ul style="list-style-type: none">• No mark to be awarded for an answer of 9• Do not penalize for incorrect notation in the answer
2.3	<ul style="list-style-type: none">• Answer only 3/3 marks• No penalty for incorrect rounding• If there is an error in the addition, award 2/3 marks• The final answer must be from 20 to 44 for a CA mark to be awarded.

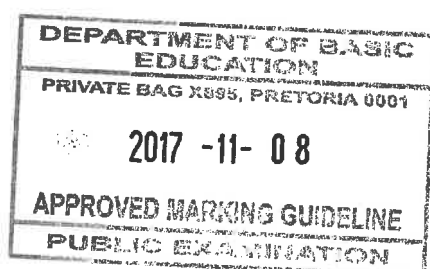


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2.4	<ul style="list-style-type: none"> • Answer only 2/2 marks • Answer must be converted to %. • CA on final answer only if 5, 7 and 3 are added. For all other values, no CA on final answer.
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QUESTION/VRAAG 3

3.1	<ul style="list-style-type: none"> • Answer only: 2/2 marks • Answer must be in surd form. No mark for answer if only decimal form of answer is given • $PQ = (7-6)^2 + (4-6)^2$ $\quad = 5$ $\quad = \sqrt{5}$: Award 1/2 marks • Must use the coordinates of P and Q only. If any other coordinates are used then BD. 0 marks • Incorrect formula BD: 0 marks
3.2	<ul style="list-style-type: none"> • Answer only: 0/3 marks • Must use the coordinates of Q and S only. If any other coordinates are used then BD. 0 marks • Incorrect formula BD: 0 marks
3.4	<ul style="list-style-type: none"> • $m_{QR} \times m_{RS} = -1$ without any working : 0/4 marks • $QR \perp RS$ $m_{QR} \times m_{RS} = -1$ $\frac{1}{2} \times -2 = -1$ Award 2/4 marks for the correct gradients $-1 = -1$ <p>Acceptable alternate solution</p> <div style="display: flex; justify-content: space-between;"> <div> $RS^2 = (1-0)^2 + (1-3)^2 = 5$ $QR^2 = (6-0)^2 + (6-3)^2 = 45$ $QS^2 = 50$ $RS^2 + QR^2 = 5 + 45$ $\quad = 50$ $\quad = QS^2$ </div> <div> $\checkmark RS^2 = 5$ $\checkmark QR^2 = 45$ $\checkmark RS^2 + QR^2 = QS^2$ </div> </div> <p>$\therefore \triangle QRS$ is right angled at R Converse Theorem of Pythagoras \checkmark reason</p>

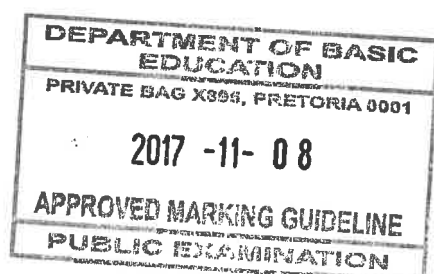


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3.5	<p>Square: Award 0/2 marks. Despite the conditions mentioned in the reason apply to a square, the adjacent sides in this quad are not equal.</p> <p>Parallelogram is not acceptable as squares and rhombuses are also parallelograms.</p>
3.6	<ul style="list-style-type: none"> • CA from 3.1 and 3.3 applies. • If the converse Theorem of Pythagoras strategy was used in 3.4, then CA from 3.4 will apply.

QUESTION/VRAAG 4

4.1.1 (a)	In the diagram, it is sufficient for the angle to be in quad 2 and $x = -3$ and $y = 4$.
4.1.1 (b)	$\frac{3 \sin \theta \sec \theta}{\tan \theta} = 3 \frac{\left(\frac{y}{r} \right) \left(-\frac{r}{x} \right)}{-\frac{y}{x}} = 3$ $\checkmark \frac{y}{r}$ $\checkmark -\frac{r}{x}$ $\checkmark -\frac{y}{x}$ $\checkmark \text{answ./antw.}$ <p>OR</p> $\frac{3 \sin \theta \sec \theta}{\tan \theta} = 3 \frac{\sin \theta \left(-\frac{1}{\cos \theta} \right)}{-\frac{\sin \theta}{\cos \theta}} = 3 \frac{\left(-\frac{\sin \theta}{\cos \theta} \right)}{-\frac{\sin \theta}{\cos \theta}} = 3$ $\checkmark -\frac{1}{\cos \theta}$ $\checkmark -\frac{\sin \theta}{\cos \theta}$ $\checkmark \text{simplification}$ $\checkmark \text{answ./antw.}$



Q m.s

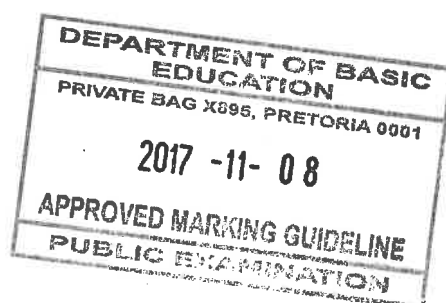
4.1.2	$LHS = \left(\frac{y}{r}\right)^2 - 1$ $= -\frac{x^2}{r^2}$ $RHS = -\left(\frac{x}{r}\right)^2$ $= -\frac{x^2}{r^2}$ $\therefore \sin^2 \theta - 1 = -\cos^2 \theta.$ <p>If proven as LHS = RHS, then max 2/3 marks</p>	<p>✓ subst./verv.</p> <p>✓ answ./antw.</p> <p>✓ answ./antw.</p>
4.2	Answer only 0/3 marks	
4.3	Answer only 2/2 marks	

QUESTION/VRAAG 5

5.1	If graphs f and g do not end at $(270^\circ; -2)$ and $(270^\circ; 0)$ respectively, then penalise for shape in each case.
5.2.2	CA from graph in 5.1
5.3.1	CA from 5.1
5.3.2	<ul style="list-style-type: none"> Answer only 3/3 marks Candidates may also arrive at the solutions by translating the graphs. In this case, a mark will be allocated to translating the graphs and the other two as indicated in the memo. If candidates omit any one of the final solutions, award 3/3 marks

QUESTION/VRAAG 6

6.2	<ul style="list-style-type: none"> BD if used 17 in the calculation: 0/3 marks CA for $\theta = 43^\circ$. BD if any other value of θ is used: 0/3 marks
6.3	CA from 6.2



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6.4	<ul style="list-style-type: none"> No marks if $PS = 17 + 17 = 34$ CA for $\theta = 43^\circ$ CA from 6.2 if candidates use Theorem of Pythagoras If PS is obtained by subtracting, max 2/4 marks
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QUESTION/VRAAG 7

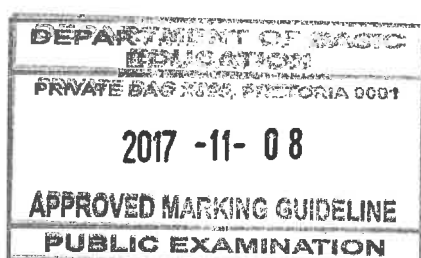
7.1	Penalise for incorrect rounding.
7.2	CA from 7.1
7.3	<ul style="list-style-type: none"> Wrong formula: BD 0/3 marks CA from 7.1 and 7.2

QUESTION/VRAAG 8

8.1	Accept as reason: diagonals of rhombus												
8.2	The parallel lines must be stated in the reasons. The 3 pairs of equal parts must be marked independently.												
8.3	<table><tr><td>DB = 2 DE</td><td>diagonals of parm</td><td>✓ S/R</td></tr><tr><td>= 2 FC</td><td>opp sides of parm</td><td>✓ S/R</td></tr><tr><td>= 2(2KC)</td><td>diagonals of parm</td><td>✓✓ S</td></tr><tr><td>= 4 KC</td><td></td><td></td></tr></table>	DB = 2 DE	diagonals of parm	✓ S/R	= 2 FC	opp sides of parm	✓ S/R	= 2(2KC)	diagonals of parm	✓✓ S	= 4 KC		
DB = 2 DE	diagonals of parm	✓ S/R											
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= 2(2KC)	diagonals of parm	✓✓ S											
= 4 KC													

QUESTION/VRAAG 9

9.1	Accept as reason midpoint theorem
9.2	No penalty if $\hat{AEH} = \hat{ABC} = 90^\circ$ is not stated. Accept AE = 5,42
9.3	<ul style="list-style-type: none"> Accept as reason midpoint theorem CA from 9.2



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