



NATIONAL SENIOR CERTIFICATE EXAMINATION
EXEMPLAR 2014

MATHEMATICAL LITERACY: PAPER I

MARKING GUIDELINES

Time: 3 hours

150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

QUESTION 1													
1.1	1.1.1	$\frac{412,73}{6338,82} \times 100 \checkmark^a \checkmark^m$ $= 6,51\% \checkmark^{ca}$	(3)										
	1.1.2	$1\ 196,51 \div 1,12 \checkmark^m \checkmark^a$ $= R\ 1\ 068,31 \checkmark^{ca}$	(3)										
	1.2	$A = 2000 \checkmark^a \left(1 + \frac{14\%}{12 \checkmark^a} \right)^{2 \times 12 \checkmark^a}$ $= \$\ 2\ 641,97 \checkmark^a$	(5)										
	1.3	$6\ 338,82 \times 9,17 \checkmark^m$ $= R\ 58\ 126,98 \checkmark^a$	(2)										
	1.4	$1100 \checkmark^a \left[\frac{(1 + 4\%)^2 - 1}{4\%} \right] \checkmark^a$ $= \$\ 539,22\ USD \checkmark^{ca}$	(4)										
	1.5	34 years (trial and error) $\checkmark^a \checkmark^a$	(2)										
1.6	1.6.1	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">H</th> <th style="width: 20%;">12 hours</th> <th style="width: 20%;">24 hours</th> <th style="width: 20%;">36 hours</th> <th style="width: 20%;">48 hours</th> </tr> </thead> <tbody> <tr> <td>P</td> <td>R85 \checkmark^a</td> <td>R 85 \checkmark^a</td> <td>85 + 142 = R 127 \checkmark^a</td> <td>85 + 42 + 42 = R 169 \checkmark^a</td> </tr> </tbody> </table>	H	12 hours	24 hours	36 hours	48 hours	P	R85 \checkmark^a	R 85 \checkmark^a	85 + 142 = R 127 \checkmark^a	85 + 42 + 42 = R 169 \checkmark^a	(4)
H	12 hours	24 hours	36 hours	48 hours									
P	R85 \checkmark^a	R 85 \checkmark^a	85 + 142 = R 127 \checkmark^a	85 + 42 + 42 = R 169 \checkmark^a									
	1.6.2 (i)	Cost of parking = $\checkmark^a \{85,00\} + n \checkmark^a \{42,00\}$	(2)										
	(ii)	Cost = 85 + 1(42) = R127,00 \checkmark^{ca}	(1)										
	1.6.3 (i)	$3 \times 24 = 72 \checkmark^a$	(1)										
	(ii)	R270 \checkmark^a	(1)										
	(iii)	$\frac{48}{12} = 4 \checkmark^a$	(1)										
	(iv)	R135,00 \checkmark^a	(1)										
	(v)	$270 + 4 \checkmark^a (135) = 810 \checkmark^a$	(2)										
	(vi)	$85 + 4 \checkmark^a (42) = 253 \checkmark^a$	(2)										
	(vii)	P6 \checkmark^{ca} (R557 less)	(1)										

1.7	1.7.1	R 151,00 ✓ ^a	(1)												
	1.7.2	Daily charge ✓ ^a R140,00 ✓ ^a Personal Accident Insurance ✓ ^a R 11,00 ✓ ^a	(4)												
	1.7.3	200 km ✓ ^a	(1)												
	1.7.4	R 1,21 per km ✓ ^a	(1)												
	1.7.5	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">COST BREAKDOWN</th> <th style="text-align: center;">AMOUNT</th> </tr> </thead> <tbody> <tr> <td>Daily Charge</td> <td style="text-align: center;">R140 ✓</td> </tr> <tr> <td>Distance travelled: First 200 km</td> <td style="text-align: center;">Free</td> </tr> <tr> <td>Distance travelled: <u>400</u> ✓ km @ R1,21 per km</td> <td style="text-align: center;">R484 ✓</td> </tr> <tr> <td>Personal Accident Insurance</td> <td style="text-align: center;">R11 ✓</td> </tr> <tr> <td>TOTAL</td> <td style="text-align: center;">R R635</td> </tr> </tbody> </table>	COST BREAKDOWN	AMOUNT	Daily Charge	R140 ✓	Distance travelled: First 200 km	Free	Distance travelled: <u>400</u> ✓ km @ R1,21 per km	R484 ✓	Personal Accident Insurance	R11 ✓	TOTAL	R R635	(5)
COST BREAKDOWN	AMOUNT														
Daily Charge	R140 ✓														
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Personal Accident Insurance	R11 ✓														
TOTAL	R R635														
			[47]												
QUESTION 2															
	2.1	17 200 000 ✓ ^a	(1)												
	2.2	$\frac{1}{3} \times 17\,200\,000$ ✓ ^m ✓ ^{ca} = 5 733 333 Passengers ✓ ^{ca}	(3)												
	2.3 2.3.1	100 : 45 20 : 9 ✓ ^a ✓ ^a	(2)												
	2.3.2	$\frac{9}{29} \times 18\,000$ ✓ ^a ✓ ^m = 5 586 people working in restaurants ✓ ^{ca}	(3)												
	2.4	$585\,000 \times 0,0001$ ✓ ^m = 58,5 hectares $58,5 \div 258,99$ ✓ ^m = 0,2259 square miles ✓ ^{ca} OR 0,23 square miles	(3)												
	2.5 2.5.1	$3\,m \times 2,6\,m$ ✓ ^a ✓ ^a = $7,8m^2$ ✓ ^{ca}	(3)												
	2.5.2	$3,5\,m \times 3,1\,m$ ✓ ^a ✓ ^a = $10,85m^2$ ✓ ^{ca}	(3)												
	2.5.3	$5\,265\,000 \div 10,85$ ✓ ^m = 485 253 ✓ ^{ca} $\approx 490\,000$ cars ✓ ^{ca(r)}	(3)												

2.6	2.6.1	$Area_{Triangle} = \frac{1}{2}(23,3 - 4)(19,3) \checkmark^a$ $= 186,25 m^2 \checkmark^a$ $Area_{Rectangle} = (19,3)(4)$ $= 77,2 m^2 \checkmark^a$ $Area_{Total} = 263,45 m^2 \checkmark^{ca}$	(4)
	2.6.2	$Area_{both\ sides} = 263,45 \times 2 \checkmark^m = 526,9 m^2$ $526,9 \div 5 = 105,38 \checkmark^a$ $105,38 \times 250 ml = 26345 ml \checkmark^a$ $26345 \times 2 = 52690 ml \text{ for 2 coats on both sides } \checkmark^a$ <p>Will also accept 52 689 ml</p>	(4)
	2.6.3 (i)	$1 cm : 200 cm \checkmark = 2 m \checkmark^a$	(2)
	(ii)	$\frac{1}{200} = 0,005 \checkmark^a$	(1)
	(iii)	$23,3 m = 2\ 330 cm$ $\frac{2\ 330 \checkmark^m}{200 \checkmark^a} = 11,65 cm \checkmark^a$	(3)
			[35]
QUESTION 3			
	3.1	<p>Get onto Line 3 (Airport line) towards Sandton \checkmark^a</p> <p>Get off at Marlboro Station \checkmark^a</p> <p>Change to Line 1 (North-South Commuter line) towards Pretoria (Hatfield) \checkmark^a</p>	(3)
3.2	3.2.1	$3,1 cm = 500 m \checkmark^a \checkmark^a$	(2)
	3.2.2	$9,1 cm \checkmark^a \checkmark^{unit}$ OR $9,2 cm$	(2)
	3.2.3	$3,1 cm = 500 m$ $\therefore 9,1 cm = \frac{9,1 \times 500}{3,1} = 1\ 467,74 m \checkmark^m \checkmark^m \checkmark^a$ OR $1\ 483,87 m$	(3)
	3.2.4	NE $\checkmark \checkmark^a$	(2)
			[12]

QUESTION 4																
4.1	4.1.1	$\frac{9 - 2,2 + 0,1 + 6,4}{4} \checkmark^a \checkmark^a \checkmark^a$ $= 4,425 \checkmark^{ca}$	(4)													
	4.1.2	$7\,965\,594 \times 104,425\% \checkmark^m \checkmark^a$ $= 8\,318\,071,535 \checkmark^{ca} \text{ OR } 8\,318\,469,81$	(3)													
	4.1.3	$7\,500\,000 \checkmark^a \checkmark^a \checkmark^a$	(3)													
	4.1.4	<div style="text-align: center;"> <p>Passenger movements</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Passenger Movements Data</caption> <thead> <tr> <th>Year</th> <th>Passenger Movements</th> </tr> </thead> <tbody> <tr> <td>2006-07</td> <td>7 000 000</td> </tr> <tr> <td>2007-08</td> <td>7 600 000</td> </tr> <tr> <td>2008-09</td> <td>7 500 000</td> </tr> <tr> <td>2009-10</td> <td>7 500 000</td> </tr> <tr> <td>2010-11</td> <td>8 000 000</td> </tr> </tbody> </table> </div> <p>$\checkmark\checkmark$ labels given $\checkmark\checkmark$ no spaces \checkmark Heading $\checkmark\checkmark\checkmark$ Accuracy of bars</p>		Year	Passenger Movements	2006-07	7 000 000	2007-08	7 600 000	2008-09	7 500 000	2009-10	7 500 000	2010-11	8 000 000	(8)
Year	Passenger Movements															
2006-07	7 000 000															
2007-08	7 600 000															
2008-09	7 500 000															
2009-10	7 500 000															
2010-11	8 000 000															
4.2	4.2.1	Highest: 2010-2011 – 63 500 $\checkmark^a \checkmark^{ca}$	(2)													
	4.2.2	Lowest: 2006-2007 – 53 000 $\checkmark^a \checkmark^{ca}$	(2)													
	4.2.3	$63\,500 \checkmark^m - 53\,000 = 10\,500 \checkmark^{ca}$	(2)													
	4.2.4	$\frac{118\,000 + 120\,000 + 110\,000 + 101\,000 + 110\,000 + 100\,000 + 80\,000}{7} \checkmark^a$ $\frac{739\,000}{7} \checkmark^m$ $= 105\,571 \checkmark^{ca}$	(3)													
	4.2.5	$110\,000 \checkmark^a \checkmark^a$	(2)													
	4.2.6	80 000; 100 000; 101 000; 110 000; 110 000; 118 000; 120 000 $\checkmark^a \checkmark^a$ Median: 110 000 \checkmark^{ca}	(3)													
			[32]													

QUESTION 5																														
5.1	5.1.1	JHB – UPT = 875 km ✓ ^a UPT – CPT = 821 km ✓ ^a Total = 1 696 km ✓ ^{ca}	(3)																											
	5.1.2	No. of litres = 1696 ÷ 11 ✓ ^m = 154.18 litres ✓ ^a Cost = 154,18 × 13,85 ✓ ^m = R 2 135,42 ✓ ^{ca}	OR ≈ 154ℓ = R2 132,90 ≈ 1 55ℓ = R2 146,75 (4)																											
	5.1.3	$speed = \frac{1696}{18,5}$ ✓ ^m ✓ ^a $speed = 91,67$ ✓ ^a $speed \approx 92 km / h$ ✓ ^{ca}	(4)																											
5.2	5.2.1	$\frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$ ✓ ^a	(3)																											
	5.2.2	$\frac{1}{5}$ ✓ ^a $\frac{1}{5}$ ✓ ^a	(2)																											
	5.2.3	Less than less likely ✓ ^a ✓ ^a Between 0 and less likely	(2)																											
5.3	5.3.1	<table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Number of meals</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>1</td> <td> </td> <td>5</td> </tr> <tr> <td>2</td> <td> </td> <td>4</td> </tr> <tr> <td>3</td> <td> </td> <td>2</td> </tr> <tr> <td>4</td> <td> </td> <td>2</td> </tr> <tr> <td>5</td> <td> </td> <td>2</td> </tr> <tr> <td>6</td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> </tr> <tr> <td>8</td> <td></td> <td></td> </tr> </tbody> </table> <p>✓ number of meals ✓^a tally ✓✓ frequency</p>	Number of meals	Tally	Frequency	1		5	2		4	3		2	4		2	5		2	6			7			8			(4)
Number of meals	Tally	Frequency																												
1		5																												
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3		2																												
4		2																												
5		2																												
6																														
7																														
8																														
	5.3.2	Mode, ✓ ^a as he would like to know which is the most popular. ✓ ^a	(2)																											
			[24]																											

Total: 150 marks