



NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2022

MATHEMATICAL LITERACY: PAPER II

MARKING GUIDELINES

Time: 3 hours

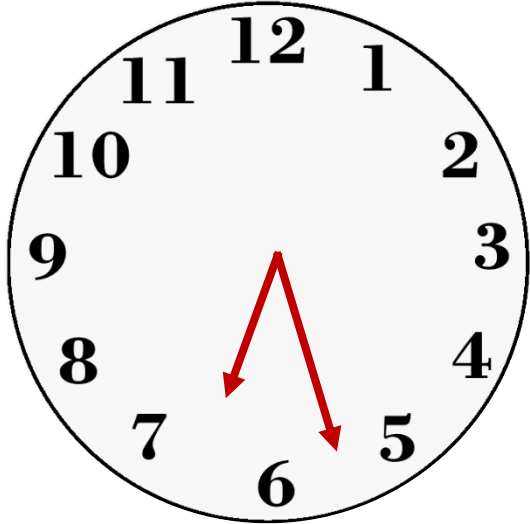
150 marks

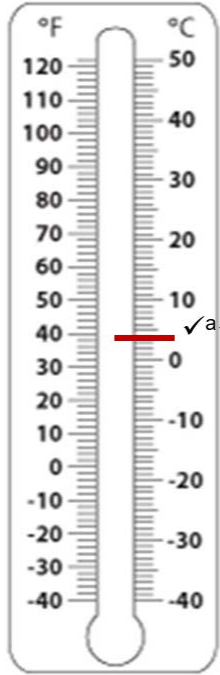
These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

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.

<p>a accuracy m method mca method continued accuracy</p>	<p>ca continued accuracy ma method accuracy r rounding</p>
---	---

QUESTION 1

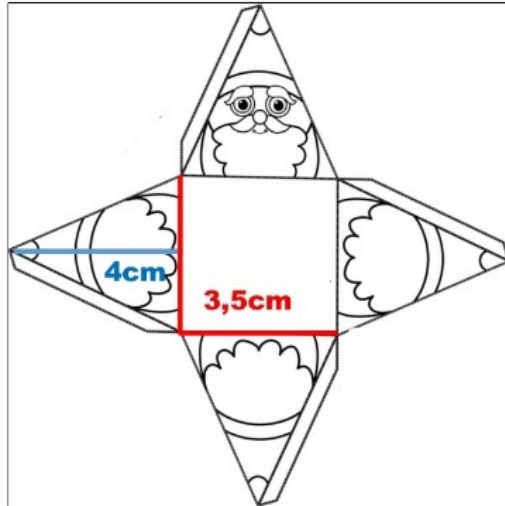
QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
1.1	4 people $\checkmark^a \checkmark^a$	(2)	1
1.2	$\frac{1}{4}$ cup : 60 ml $1 \div \frac{1}{4} \times 60 \text{ ml } \checkmark^{ma}$ = 240 ml \checkmark^a OR $60 \times 4 \checkmark^{ma}$ = 240 ml \checkmark^a	(2)	1
1.3	50 min $\checkmark^a \checkmark^a$	(2)	1
1.4	$5.37 + 50 \text{ min}$ = 6.27 pm \checkmark^a = 18:27 \checkmark^a	(2)	1
1.5	 $\checkmark^{ca} \checkmark^{ca}$	(2)	1
1.6.1	$15 \text{ ml} \div 5 \text{ ml } \checkmark^{ma}$ = 3 teaspoons \checkmark^a	(2)	1
1.6.2	1 : 3 $\checkmark^a \checkmark^a$	(2)	1
1.6.3	$\frac{3}{4}$ teaspoon : 1 tablespoon $3,75 \text{ ml} : 15 \text{ ml } \checkmark^a$ $\therefore \frac{3,75 \text{ ml}}{15 \text{ ml}} \times 100 \checkmark^{ma}$ = 25% \checkmark^{ca}	(3)	1
1.6.4	7 tablespoons \checkmark^a + 1 teaspoon \checkmark^a OR 6 tablespoons \checkmark^a + 4 teaspoons \checkmark^a	(2)	1

1.7.1	50 °F ✓ ^a ✓ ^a	(2)	1
1.7.2		(2)	1
1.7.3	$4\text{ °C} - 22\text{ °C}$ ✓ ^{ma} $= -18\text{ °C}$ ✓ ^a	(2)	1
1.8.1	E ✓ ^a	(1)	1
1.8.2	A ✓ ^a	(1)	1
1.8.3	C ✓ ^a	(1)	1
1.8.4	D ✓ ^a	(1)	1
1.8.5	B ✓ ^a	(1)	1
		[30]	

QUESTION 2

QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
2.1.1	9 ft $\sqrt{a}\sqrt{a}$	(2)	1
2.1.2	7,5 × [0,3048 \sqrt{a} × 100] = 7,5 × [30,48 \sqrt{ma} × 100] = 228,6 cm \sqrt{ca}	(3)	2
2.1.3	64 ÷ 2 = 32 inches $\sqrt{a}\sqrt{a}$	(2)	1
2.1.4	Area = 3,14 × 32 × 32 \sqrt{m} Area = 3 215,36 inches ² \sqrt{a} OR Area = π × 32 × 32 Area = 3 216, 99 inches ²	(2)	2
2.2.1	5 ft × 30,48 \sqrt{ma} = 152,4 cm \sqrt{a} $\frac{13 \times 3,14}{8} \times 152,4$ cm \sqrt{m} = 777,621 cm = 778 cm of tinsel \sqrt{r} OR $\frac{13 \times \pi}{8} \times 152,4$ cm = 778,01 cm = 778 cm of tinsel	(4)	4
2.2.2	5 ft = 150 cm height = 150 $\sqrt{r} \div 10$ \sqrt{ma} height = 15 cm	(2)	2
2.2.3	31 baubles ÷ 5 ft \sqrt{m} = 6,2 baubles/ft \sqrt{a}	(2)	1
2.2.4	7,5 ft × 6,2 \sqrt{m} = 46,5 baubles \sqrt{a} = 47 baubles \sqrt{ar}	(3)	2
2.3.1	Area of 4 triangles = $(\frac{1}{2} \times 3,5 \sqrt{ma} \times 4) \times 4$ \sqrt{m} Area of 4 triangles = 28 cm ² \sqrt{a} Area of square = 3,5 × 3,5 Area of square = 12,25 cm ² \sqrt{a} Total Surface Area = 28 + 12,25 Total Surface Area = 40,25 cm ² \sqrt{ca}	(5)	3

2.3.2

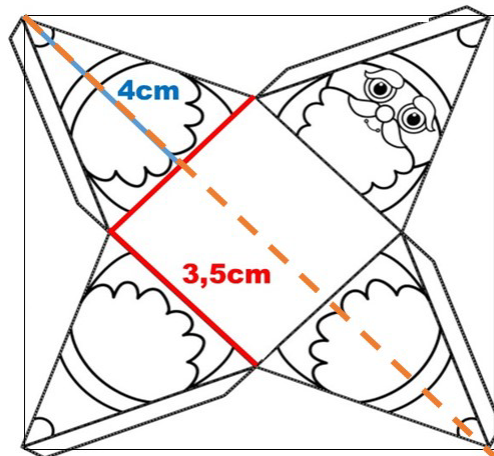


Dimensions of paper = 11,5 cm \checkmark^a by 11,5 cm

Area of paper = 11,5 x 11,5 \checkmark^{mca}

Area of paper = 132,25 cm² \checkmark^{ca}

OR



Diagonal length = 11,5 cm

Side of Square = $\sqrt{(11,5)^2 \div 2}$

Side of Square = 8,1317 cm \checkmark^a

Area of Square = 8,1317² \checkmark^{mca}

Area of Square = 66,125 cm² \checkmark^{ca}

OR

Side of Square = $\sqrt{2 \times 5,75^2}$

Side of Square = 8,1317 cm \checkmark^a

Area of Square = 8,1317² \checkmark^{mca}

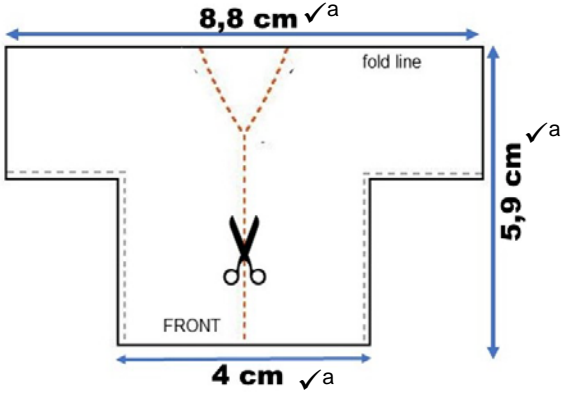
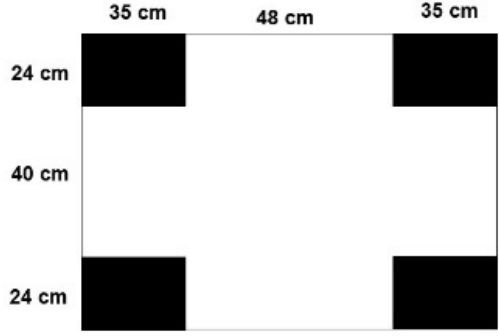
Area of Square = 66,125 cm² \checkmark^{ca}


(3)

4

[28]

QUESTION 3

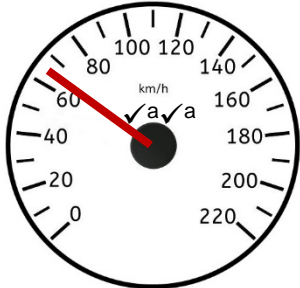
QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
3.1		(3)	2
3.2	 <p>(a) Width = 88 cm</p> <p>(b) Length = 118 cm</p>	(3)	3
3.3	<p>Area of 4 black rectangles $= (24 \times 35) \times 4$ $= 3\,360 \text{ cm}^2$</p> <p>Area of cut outs $= 3\,360 \text{ cm}^2 + 160 \text{ cm}^2$ $= 3\,520 \text{ cm}^2$</p>	(3)	2
3.4	$3\,520 \div 100^2$ $= 0,352 \text{ m}^2$	(2)	2
3.5.1	$118 \times 1,1 = 129,8 \text{ cm}$ $88 \times 1,1 = 96,8 \text{ cm}$ OR $118 + 0,1 \times 118 = 129,8 \text{ cm}$ $88 + 0,1 \times 88 = 96,8 \text{ cm}$	(3)	3
3.5.2	<p>Due to width of material, require $1,5 \text{ m}$ $1,5 \times \text{R}129,99$ $= \text{R}194,985$ $= \text{R}194,99$</p>	(4)	4

3.6.1	$\frac{1}{3} \sqrt{a}\sqrt{a}$ OR $0,33 \sqrt{a}\sqrt{a}$ OR $33\% \sqrt{a}\sqrt{a}$	(2)	2
3.6.2	$\frac{1}{12} \sqrt{a}\sqrt{a}$ OR $0,083 \sqrt{a}\sqrt{a}$ OR $8,3\% \sqrt{a}\sqrt{a}$	(2)	2
3.6.3 (a)	$\frac{2}{3} \sqrt{a}$	(1)	2
3.6.3 (b)	$\frac{1}{12} \sqrt{a}$	(1)	2
3.6.3 (c)	$\frac{11}{36} \sqrt{a}$	(1)	2
3.7.1	 $\sqrt{a}\sqrt{a}$	(2)	4
3.7.2	$13 + 4 \times 3$ $= 25 \text{ beads } \sqrt{a}\sqrt{a}$ OR $4 + 3(8 - 1)$ $= 25 \text{ beads } \sqrt{a}\sqrt{a}$	(2)	4
		[29]	

QUESTION 4

QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL												
4.1.1	1 inch = 2,5 cm $\checkmark^a \checkmark^a$ Accept between 2,4 and 2,5 cm	(2)	1												
4.1.2	15,8 cm $\checkmark^a \checkmark^a$ (accept 15,7–15,9 cm)	(2)	1												
4.1.3	$15,8 \div 1,7 \times 200 \checkmark^{ma}$ $= 1\ 858,8 \text{ m } \checkmark^a [\div 1\ 000]$ $= 1,8588 \text{ km}$ $= 1,9 \text{ km } \checkmark^r$	(3)	2												
4.1.4	South-West $\checkmark^a \checkmark^a$	(2)	1												
4.1.5	$40^\circ \checkmark^a \checkmark^a$	(2)	4												
4.2.1	$13,5 \times 1,6 \checkmark^{ma}$ $= 21,6 \text{ km/h } \checkmark^a$	(2)	2												
4.2.2	Time = $3,6 \div 21,6 \text{ km/h } \checkmark^a$ Time = 0,166 hours \checkmark^a Time = 10 minutes \checkmark^a	(3)	3												
4.2.3 (a)	Volume = $210 \times 120 \times 50 \checkmark^{ma}$ Volume = $1\ 260\ 000 \text{ mm}^3 \checkmark^a$	(2)	1												
4.2.3 (b)	$2 \text{ kg } \div 1\ 260\ 000 \text{ mm}^3$ $= 2\ 000 \text{ g } \checkmark^a \div \checkmark^m 1\ 260\ 000 \text{ mm}^3$ $= 1,587 \times 10^{-3}$ $= 0,001587 \text{ g/mm}^3$ $= 0,002 \text{ g/mm}^3 \checkmark^{car}$	(3)	3												
4.2.3 (c)	$R24 \times 2 = R48/\text{block } \checkmark^a$ 1 block = 2 kg Need $6 \text{ kg } \div 2 = 3 \text{ blocks } \checkmark^a$ $R48 \times 3 \checkmark^{ma}$ $= R144 \checkmark^a$ OR $3 \times 2 \text{ kg} = 6 \text{ kg}$ $6 \times 24 = R144$	(4)	4												
4.2.3 (d)	$-110,2^\circ\text{F} - 32 \checkmark^m \checkmark^a$	(2)	2												
4.2.3 (e)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">Degree Celsius vs Degree Fahrenheit</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">°C</td> <td style="text-align: center;">0</td> <td style="text-align: center;">10</td> <td style="text-align: center;">20</td> <td style="text-align: center;">50</td> <td style="text-align: center;">100</td> </tr> <tr> <td style="text-align: center;">°F</td> <td style="text-align: center;">32</td> <td style="text-align: center;">50</td> <td style="text-align: center;">68</td> <td style="text-align: center;">112</td> <td style="text-align: center;">212</td> </tr> </table> </div>	°C	0	10	20	50	100	°F	32	50	68	112	212	(3)	2
°C	0	10	20	50	100										
°F	32	50	68	112	212										
		[30]													

QUESTION 5

QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
5.1.1	$1,2 \text{ km} \div 240$ $= 1\,200 \text{ m} \div 240 \checkmark^{ma}$ $= 5 \text{ laps} \checkmark^a \checkmark^a$	(3)	2
5.1.2	$25 \text{ sec} \times 5 \text{ laps}$ $= 125 \text{ sec} \checkmark^a [\div 60]$ $= 2 \text{ min } 5 \text{ sec} \checkmark^a$ OR $= 2,08 \text{ minutes} \checkmark^a$	(2)	2
5.1.3	$25 \text{ sec} - 20,741 \text{ sec} \checkmark^{ma}$ $= 4,259 \text{ sec} \checkmark^a$ $= 4 \text{ sec}$	(2)	2
5.1.4		(2)	1
5.2.1	$\text{Distance} = 10 \text{ laps} \times 240 \text{ m}$ $\text{Distance} = 2\,400 \text{ m}$ $\text{Distance} = 2,4 \text{ km} \checkmark^a$ $\text{Time} = 2,4 \div 65 \checkmark^m$ $\text{Time} = 0,0369 \text{ hrs}$ $\text{Time} = 2 \text{ min } 13 \text{ sec} \checkmark^a$ $\text{Time} = 2,4 \div 57$ $\text{Time} = 0,0421 \text{ hrs} \checkmark^a$ $\text{Time} = 2 \text{ min } 32 \text{ sec} \checkmark^a$ $\text{Time Difference} = 2 \text{ m } 32 \text{ s} - 2 \text{ m } 13 \text{ s} \checkmark^m$ $\text{Time Difference} = 19 \text{ seconds} \checkmark^a$ OR $\text{Time Difference} = 18,74 \text{ seconds} \checkmark^a$	(7)	3
5.2.2	$\text{Perimeter} =$ $(2 \times 3,14 \times 16) \checkmark^{ma} + (2 \times 70) \checkmark^{ma}$ $\text{Perimeter} = 240,48 \text{ m} \checkmark^a$ OR If use π $\text{Perimeter} = 240,53 \text{ m}$	(3)	4

5.2.3	$2,4 \text{ km/race} \checkmark^a$ $\frac{1}{2} \times 9 \text{ litres}$ $= 4,5 \text{ litres/race} \checkmark^a$ Fuel Consumption = $4,5 \text{ litres} \div \checkmark^{ma} 2,4 \text{ km}$ Fuel Consumption = $1,875 \text{ l/km} \checkmark^a$	(4)	3
5.3.1	$27,94 \text{ cm} - 25,4 \text{ cm} \checkmark^{ma}$ $= 2,54 \text{ cm} \checkmark^a$	(2)	1
5.3.2	Circumference = $3,14 \times 25,4 \text{ cm} \checkmark^{ma}$ Circumference = $3,14 \times 0,254 \text{ m} \checkmark^{ma}$ Circumference = $0,79756 \text{ m} \checkmark^a$ $240 \text{ m} \div \checkmark^m 0,79756 \text{ m}$ $= 300 \text{ rotations} \checkmark^{ca}$	(5)	4
5.3.3	$1 \text{ race} = 2,4 \text{ km}$ $10 \text{ km} \div \checkmark^{ma} 2,4 \text{ km}$ $= 4,166 \text{ races} \checkmark^a$ $= 4 \text{ races} \checkmark^a$	(3)	3
		[33]	

Total: 150 marks