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.

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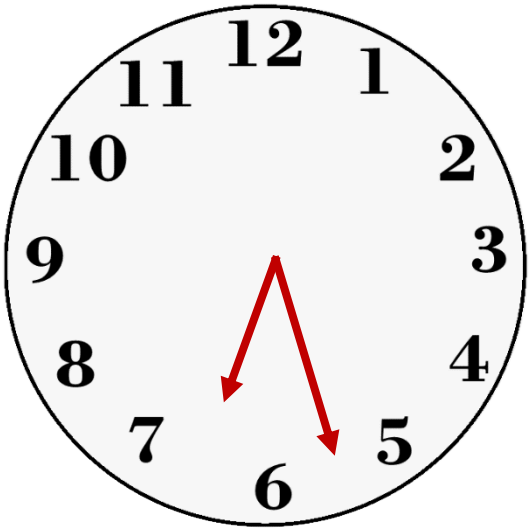
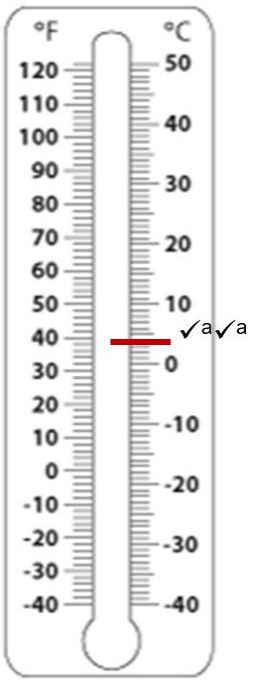
a accuracy **m** method **mca** method continued accuracy	**ca** continued accuracy **ma** method accuracy **r** rounding

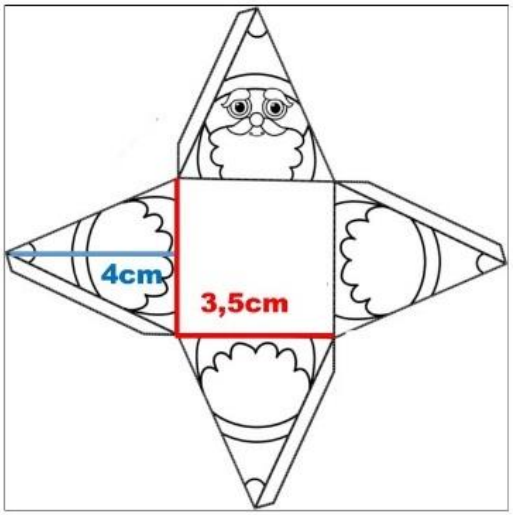
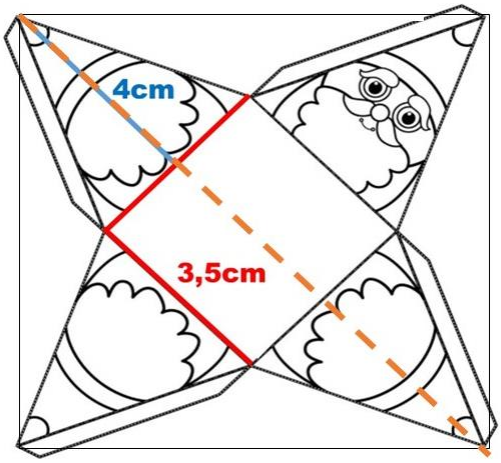
QUESTION 1

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

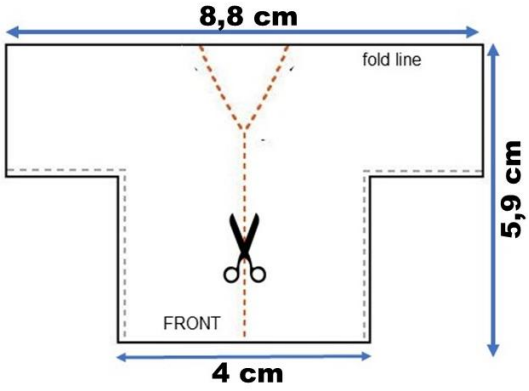
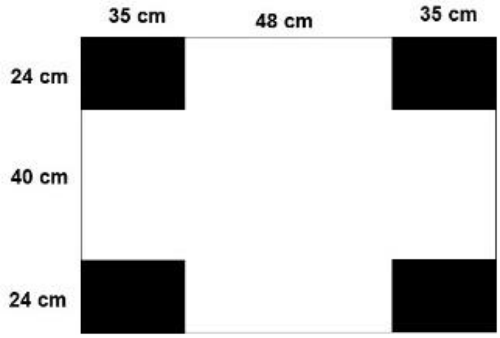
1.7.1	50 °F		1
1.7.2			1
1.7.3	4 °C – 22 °C = –18 °C		1
1.8.1	E		1
1.8.2	A		1
1.8.3	C		1
1.8.4	D		1
1.8.5	B		1

QUESTION 2

QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
2.1.1	9 ft		1
2.1.2	7,5 × [0,3048 × 100] = 7,5 × [30,48 × 100] = 228,6 cm		2
2.1.3	64 ÷ 2 = 32 inches		1
2.1.4	Area = 3,14 × 32 × 32 Area = 3 215,36 inches² **OR** Area = π × 32 × 32 Area = 3 216, 99 inches²		2
2.2.1	5 ft × 30,48 = 152,4 cm $\frac{13 \times 3,14}{8}$ × 152,4 cm = 777,621 cm = 778 cm of tinsel **OR** $\frac{13 \times \pi}{8}$ × 152,4 cm = 778,01 cm = 778 cm of tinsel		4
2.2.2	5 ft = 150 cm height = 150 ÷ 10 height = 15 cm		2
2.2.3	31 baubles ÷ 5 ft = 6,2 baubles/ft		1
2.2.4	7,5 ft × 6,2 = 46,5 baubles = 47 baubles		2
2.3.1	Area of 4 triangles = ($\frac{1}{2}$ × 3,5 × 4) × 4 Area of 4 triangles = 28 cm² Area of square = 3,5 × 3,5 Area of square = 12,25 cm² Total Surface Area = 28 + 12,25 Total Surface Area = 40,25 cm²		3

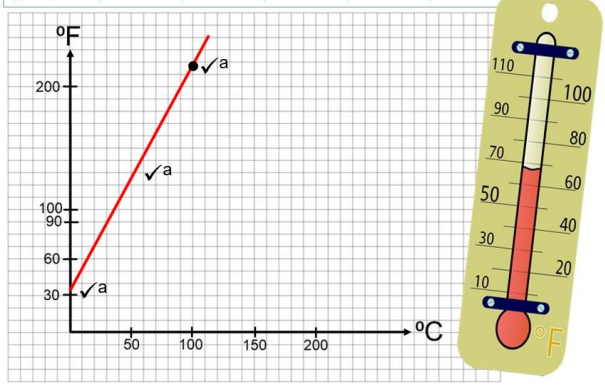
2.3.2	 Dimensions of paper = 11,5 cm by 11,5 cm Area of paper = 11,5 × 11,5 Area of paper = 132,25 cm² **OR**  Diagonal length = 11,5 cm Side of Square = $\sqrt{(11{,}5)^2 \div 2}$ Side of Square = 8,1317 cm Area of Square = 8,1317² Area of Square = 66,125 cm² **OR** Side of Square = $\sqrt{2 \times 5{,}75^2}$ Side of Square = 8,1317 cm Area of Square = 8,1317² Area of Square = 66,125 cm²		4

QUESTION 3

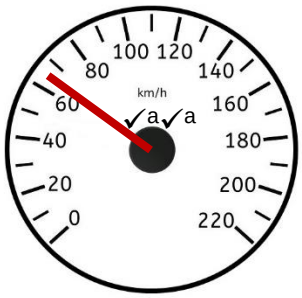
QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
3.1			2
3.2	 (a) Width = 88 cm (b) Length = 118 cm		3
3.3	Area of 4 black rectangles = (24 × 35) × 4 = 3 360 cm² Area of cut outs = 3 360 cm² + 160 cm² = 3 520 cm²		2
3.4	3 520 ÷ 100² = 0,352 m²		2
3.5.1	118 × 1,1 = 129,8 cm 8 × 1,1 = 96,8 cm **OR** 118 + 0,1 × 118 = 129,8 cm 88 + 0,1 × 88 = 96,8 cm		3
3.5.2	Due to width of material, require 1,5 m 1,5 × R129,99 = R194,985 = R194,99		4

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

QUESTION 4

QUESTION NUMBER	MARKING GUIDELINE	MARK ALLOCATION	COGNITIVE LEVEL
4.1.1	1 inch = 2,5 cm Accept between 2,4 and 2,5 cm		1
4.1.2	15,8 cm (accept 15,7–15,9 cm)		1
4.1.3	15,8 ÷ 1,7 × 200 = 1 858,8 m [÷ 1 000] = 1,8588 km = 1,9 km		2
4.1.4	South-West		1
4.1.5	40°		4
4.2.1	13,5 × 1,6 = 21,6 km/h		2
4.2.2	Time = 3,6 ÷ 21,6 km/h Time = 0,166 hours Time = 10 minutes		3
4.2.3 (a)	Volume = 210 × 120 × 50 Volume = 1 260 000 mm³		1
4.2.3 (b)	2 kg ÷ 1 260 000 mm³ = 2 000 g ÷ 1 260 000 mm³ = 1,587 × 10^{-3} = 0,001587 g/mm³ = 0,002 g/mm³		3
4.2.3 (c)	R24 × 2 = R48/block 1 block = 2 kg Need 6 kg ÷ 2 = 3 blocks R48 × 3 = R144 **OR** 3 × 2 kg = 6 kg 6 × 24 = R144		4
4.2.3 (d)	–110,2 °F – **32**		2
4.2.3 (e)	Degree Celsius vs Degree Fahrenheit °C: 0, 10, 20, 50, 100 °F: 32, 50, 68, 112, 212 		2

QUESTION 5

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

5.2.3	2,4 km/race $\frac{1}{2}$ × 9 litres = 4,5 litres/race Fuel Consumption = 4,5 litres ÷ 2,4 km Fuel Consumption = 1,875 l/km		3
5.3.1	27,94 cm – 25,4 cm = 2,54 cm		1
5.3.2	Circumference = 3,14 × 25,4 cm Circumference = 3,14 × 0,254 m Circumference = 0,79756 m 240 m ÷ 0,79756 m = 300 rotations		4
5.3.3	1 race = 2,4 km 10 km ÷ 2,4 km = 4,166 races = 4 races		3

Total: 150 marks