education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

MATHEMATICS P2
NOVEMBER 2024
MARKING GUIDELINES

MARKS: 100

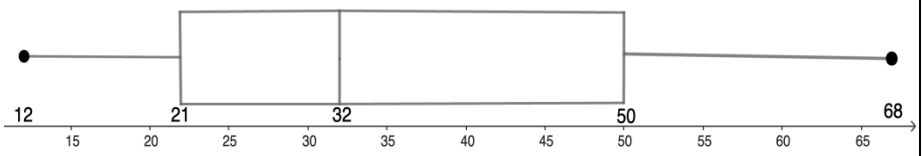
These marking guidelines consist of 10 pages.

ease turn over

C.A is applicable in all aspects of the marking guidelines.

QUESTION 1

1.1



✓ min value,max value
✓ ✓(Combination)
$Q_1 = 21$
$Q_2 = 32$
$Q_3 = 50$ (3)

1.2 IQR = $Q_3 - Q_1$
= 50 -21
= 29

Answer only full marks

✓ formula
✓ answer (2)

1.3 Range = max val – min val
= 68-12
= 56

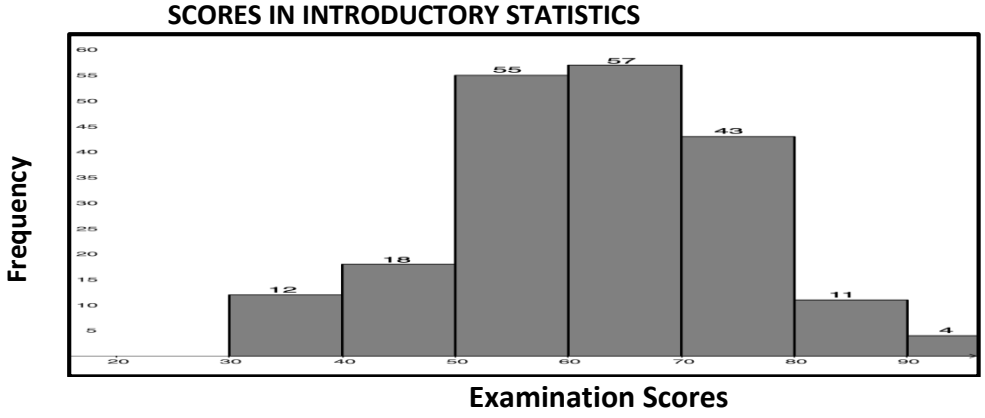
Answer only full marks

✓ formula
✓ answer (2)

1.4 The data is skewed to the right. ✓ answer (1)

[8]

QUESTION 2



2.1 $n = 200$ ✓ answer (1)

2.2 $60 < m \leq 70$ ✓ answer (1)

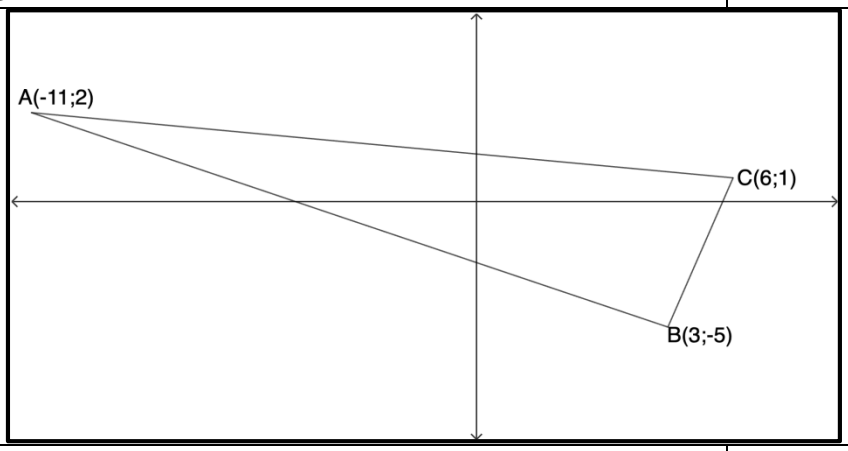
2.3

Exam scores	Frequency	$x.f$
$30 < m \leq 40$	12	420
$40 < m \leq 50$	18	810
$50 < m \leq 60$	55	3025
$60 < m \leq 70$	57	3705
$70 < m \leq 80$	43	3225
$80 < m \leq 90$	11	935
$90 < m \leq 100$	4	380
	200	12500

✓Addition (200)
✓$x.f$ (12 500)
✓ substitution
✓ answer
(4)

	$\frac{\sum xf}{n} = \frac{12500}{200}$ $= 62,5$	

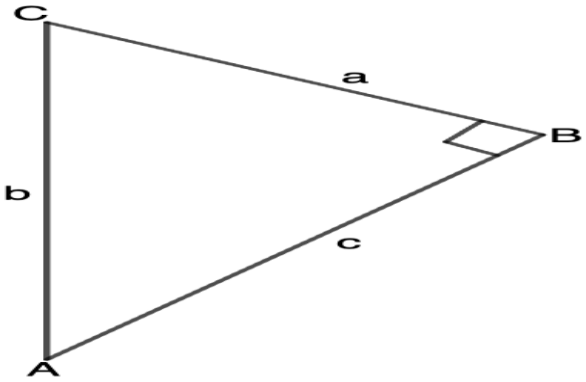
2.4	Answer only full marks $\frac{n+1}{2} = \frac{200+1}{2}$ $= 100,5$ $Q_2 = 60 < m \leq 70$	✓ 100,5 ✓ answer (2)
2.5	$\frac{3(n+1)}{4} = \frac{3(200+1)}{4}$ $= 150,75$ [position] $70 < m \leq 80$	✓ answer (1)
		[9]
QUESTION 3		

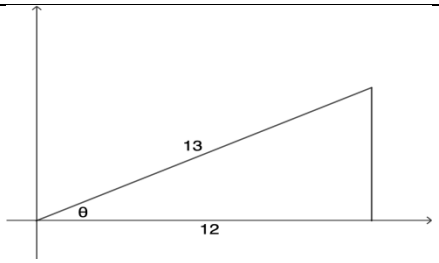


3.1	$BC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $= \sqrt{(6-3)^2 + (1-(-5)^2}$ $= 3\sqrt{5}$	✓sub ✓answer (2)
3.2	$D = \left(\frac{x_1 + x_2}{2}; \frac{y_1 + y_2}{2}\right)$ $= \left(\frac{-11+3}{2}; \frac{2+(-5)}{2}\right)$ $= \left(-4; -\frac{3}{2}\right)$	✓formula ✓sub ✓✓midpoint (4)

3.3	$M_{AB}=\frac{y_2-y_1}{x_2-x_1}$ $M_{AB}=\frac{2-(-5)}{-11-3}$ $M_{AB}=-\frac{7}{14}=-\frac{1}{2}$ $M_{BC}=\frac{y_2-y_1}{x_2-x_1}$ $M_{BC}=\frac{1-(-5)}{6-3}$ $M_{BC}=2$ $M_{AB}\times M_{BC}$ $-\frac{1}{2}\times 2=-1$ AB $\perp$ BC $\therefore \hat{ABC}=90°$	✓formula ✓sub ✓gradient of AB ✓gradient of BC ✓answer (5)
3.4	BC $=3\sqrt{5}$ AB $=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ AB $=\sqrt{(3-(-11))^2+(-5-2)^2}$ $AB=7\sqrt{5}$ $A=\frac{1}{2}(BC\times AB)$ $=\frac{1}{2}\left(3\sqrt{5}\times 7\sqrt{5}\right)$ $=\frac{105}{2}$ units^2 $=52{,}5$units^2	✓distance of AB ✓ formula ✓sub ✓answer (4)
		[15]

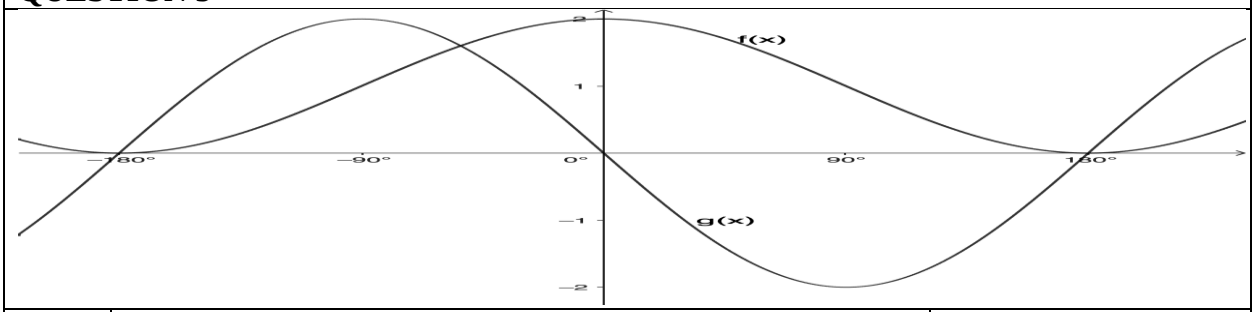
QUESTION 4



4.1.1	$\sin A = \frac{a}{b}$	✓answer (1)
4.1.2	$\cot C = \frac{a}{c}$	✓answer (1)
4.1.3	$\hat{C} = 40° - \text{sum of } \angle\text{'s of a } \Delta.$ $\cot C = \frac{a}{c}$ $\cot 40° = \frac{5}{c}$ $c = \frac{5}{\cot 40°}$ $c = 4.20$	✓S/R ✓sub ✓ $c = 4.20$ (3)
4.2.1	$13\cos\theta = 12$ $\cos\theta = \frac{12}{13}$ $r^2 = x^2 + y^2$ $(13)^2 = (12)^2 + y^2$ $5 = y$ $\sin\theta = \frac{5}{13}$	 ✓ $\cos\theta = \frac{12}{13}$ ✓diagram ✓ $5 = y$ ✓ $\sin\theta = \frac{5}{13}$ (4)
4.2.2	$\tan\theta - \text{cosec}^2\theta$ $= \left(\frac{5}{12} - (\frac{13}{5})^2\right)$ $= -\frac{1903}{300} = -6{,}34$	✓ $\frac{5}{12}$ ✓ $\frac{13}{5}$ ✓ answer (3)

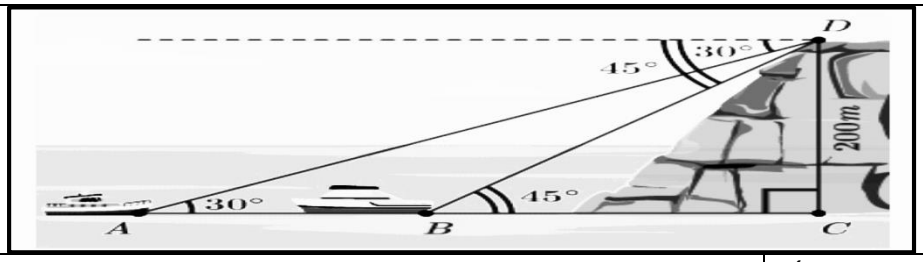
4.3	$\text{cosec}60°.\cot 30° + \cos 45°.\text{cosec}45°.$ $= \frac{2}{\sqrt{3}}.\sqrt{3} + \frac{1}{\sqrt{2}}.\sqrt{2}$ $= 2 + 1$ $= 3$	✓ $\frac{2}{\sqrt{3}}$ ✓ $\sqrt{3}$ ✓ $\frac{1}{\sqrt{2}}$ ✓ $\sqrt{2}$ ✓ 3 (5)
4.4	$3 + \sec x = 5$ $\sec x = 2$ $\frac{1}{\cos x} = 2$ $\cos x = \frac{1}{2}$ $x = \cos^{-1}\left(\frac{1}{2}\right)$ $x = 60$	✓ $\sec x = 2$ ✓ $\frac{1}{\cos x} = 2$ ✓ $x = 60$ (3)
		[20]

QUESTION 5



5.1	$a = 1$ $b = -2$	✓ $a=1$ ✓ $b=2$ (2)
5.2	360°	✓answer (1)
5.3	$y \in [0;2]$ or $0 \le y \le 2$	✓✓ $y \in [0;2]$ or $0 \le y \le 2$ (combination) (2)
5.4	2	✓answer (1)
5.5	1 solution	✓answer (1)
5.6	$0° < x < 180°$ or $x \in (0°;180°)$	✓✓ $0° < x < 180°$ or $(0°;180°)$ (combination) (2)
5.7.1	$h(x) = -\cos x - 3$	✓ $-\cos x$ ✓ -3 (2)
5.7.2	$y \in [-4;-2]$ or $-4 \le y \le -2$	✓✓Answer (Combination) (2)
		[13]

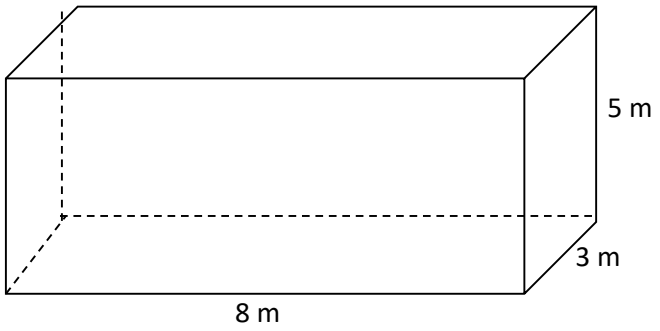
QUESTION 6



6.1	$\hat{B}+\hat{C}+B\hat{D}C=180°-\text{sum of }\angle\text{'s of a }\Delta$ $45°+90°+B\hat{D}C=180°$ $B\hat{D}C=180°-45°-90°$ $B\hat{D}C=45°$	✓S/R ✓answer (2)
6.2	$\tan B=\frac{DC}{BC}$ $\tan 45°=\frac{200}{BC}$ $BC=200m$ OR BC= 200m- sides opp = angles	✓sub ✓answer ✓ S✓ R (2)
6.3	$\tan\hat{A}=\frac{CD}{AC}$ $\tan 30°=\frac{200}{AC}$ $AC=\frac{200}{\tan 30°}$ $AC=346.41$ $AC-BC=AB$ $346.41-200=AB$ $146.41=AB$	✓ratio ✓ $AC=346.41$ / $200\sqrt{3}$ ✓Difference ✓answer (4)
		[8]

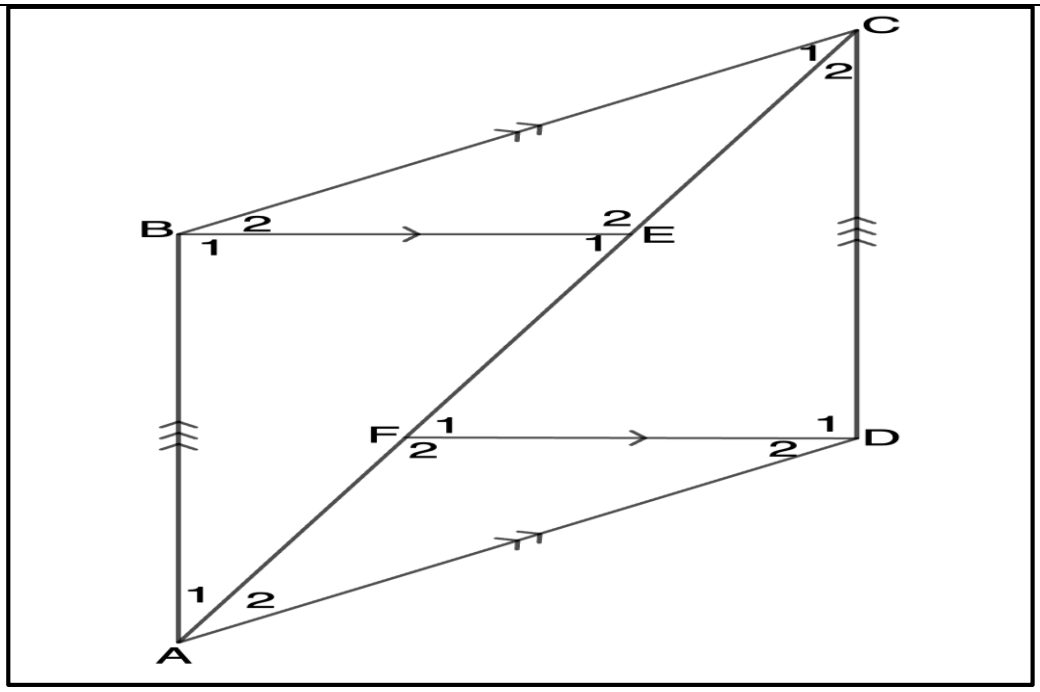
QUESTION 7

V = L.B.H
SA = 2(L.B)+ 2(L.H)+2(H.B)



7.1	$= 2(8\times5)+(2(3\times5))+2(3\times8)$ $= 158m^2$	✓ substitution ✓ answer (2)
7.2	$V = L.B.H$ $= 8\times3\times5$ $= 120m^3$	✓ substitution ✓ answer (2)
7.3	$V = L.B.H$ *16* x *9* x *2,5* *360* m^3	✓ ✓ *16* x *9* x *2,5* ✓ answer (3)
		[7]

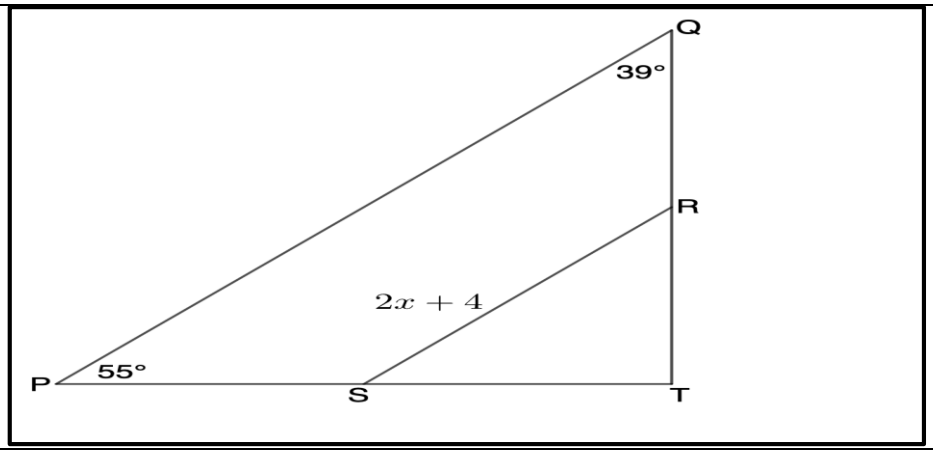
QUESTION 8



8.1.1	$AB = CD$ – opp side of parm are = $\hat{A}_1 = \hat{C}_2$ – alt ∠'s $AB \parallel CD$ $\hat{E}_1 = \hat{F}_1$ – alt ∠'s $BE \parallel FD$ $\therefore \Delta ABE \equiv \Delta CDF$, AAS	✓S/R ✓S/R ✓S/R ✓ Conclusion (4)

8.1.2	$\hat{C}_1 = \hat{A}_2 -$ alt $\angle$'s BC $\|$ AD (A) $\hat{B} = \hat{D} -$ opp $\angle$'s of a parm $\hat{B}_1 = \hat{D}_1 -$ proven($\Delta ABE \equiv \Delta CDF$) $\hat{B}_2 = \hat{D}_2 - (A)$ $\hat{F}_2 = \hat{E}_2 -$ sum of $\angle$'s of a Δ	✓S/R ✓S/R ✓S/R (3)
8.1.3	$\hat{C}_1 = \hat{A}_2 -$ proven $\hat{B}_2 = D_2 -$ proven $BC = AD -$ opp sides of parm are = $\therefore \Delta CBE \equiv \Delta ADF, AAS$ $AF = CE -$ congruent Δ	✓S/R ✓S/R ✓conclusion (3)
		[10]

QUESTION 9



9.2	$18 = 4x + 8$ $18 - 8 = 4x$ $\frac{10}{4} = \frac{5}{2} = x$	✓$18=4x+8$ ✓$10=4x$ ✓ answer (3)
9.3	RS is a midpoint ∴ SR‖PQ $\hat{Q} = \hat{R} = 39°$–corr ∠'s SR‖PQ(A) $\hat{P} = \hat{S} = 55°$–corr ∠'s SR‖PQ(A) $\hat{T} = \hat{T}$ – common ∠(A) ∴ ΔTRS|||ΔTQP,AAA	✓S✓R ✓S✓R ✓conclusion (5)
		[10]
		TOTAL : 100