Grade 9 November Paper 2 2024 Memorandum

Question 1

1.1.1

Marks	Frequency ✓	Midpoint ✓	F x m ✓
$0 \le x < 10$	2	5	10
$10 \le x < 20$	5	15	75
$20 \le x < 30$	4	25	100
$30 \le x < 40$	6	35	210
$40 \le x < 50$	3	45	135
TOTAL	20		530

✓ Frequency column
✓ Midpoint column
✓ **CA** Freq. X mid. column

(3)

1.1.2

$\frac{530}{20}$ ✓ $= 26.50$ ✓ **CA for sum of FxM**

✓ fraction
✓ simplified answer
provide full marks if they give only the fraction

(2)

1.1.3

$20 \le x < 30$ ✓✓

✓ ✓

(2)

1.1.4

$30 \le x < 40$ ✓

✓

(1)

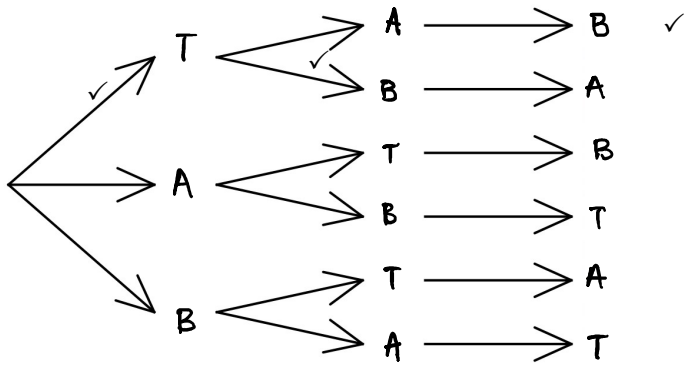
1.2

Positive ✓ linear ✓ relationship

✓ Positive
✓ linear

(2)

1.3



✓ X3 for branches

(3)

1.3.1

S = { TAB ; TBA; ATB; ABT; BAT; BTA}

✓ All correct combinations

(1)

1.3.2

$\frac{2}{6}$

✓ 2/6

(1)

[15]

Question 2

2.1

				Answer
1	Supplementary		A quad…	5
2	The sum of the opposite interior angles		Lines that never intersect…	3 ✓
3	Parallel lines		Triangles are congruent	7✓
4	90°		The exterior …	2✓
5	Kite		Sum to 180°	1✓
6	AAA		diagonals …	4✓
7	AAS			

✓ X5 correct answers (5)

2.2.1

PQ//RT
RT//QR ✓
∴ PQRT //ogram ✓ Opp sides //

OR

PQRT //ogram ✓ Both pairs opp sides // ✓

✓ parallelogram
✓ reasons (2)

2.2.2

a = 25° ✓ <s opp = sides ✓
b = 180 – 50 = 130° ✓ int <s in ΔHRT ✓
c = 50° ✓ co-int <s PQ//RT ✓
PQ = TR Prop //ogram ✓
d = 50° ✓ <s opp = sides ✓

✓ a
✓ reason
✓ b
✓ reason
✓ c
✓ reason
✓ PQ= TR prop //ogram
✓ d
✓ reason (9)

2.3

$80° + 2a + (2a + 38°) + (a + 12) = 360°$ ✓ int <s of quad ✓

$5a = 360 – 130$
$a = 46°$
$2b = 46 + 12$ Vert opp <s
$b = 29°$

✓ add < = 360
✓ int < of quad
✓ a = 46°
✓ Vert opp <s
✓ b = 29° (5)

2.4

$\hat{B}_1 = \hat{B}_2$
$\hat{C}_1 = \hat{C}_2$ ✓ <s bisect

$\hat{B}_1 + \hat{B}_2 + \hat{C}_1 + \hat{C}_2 = 180°$ ✓ Co-int < AB//DC ✓

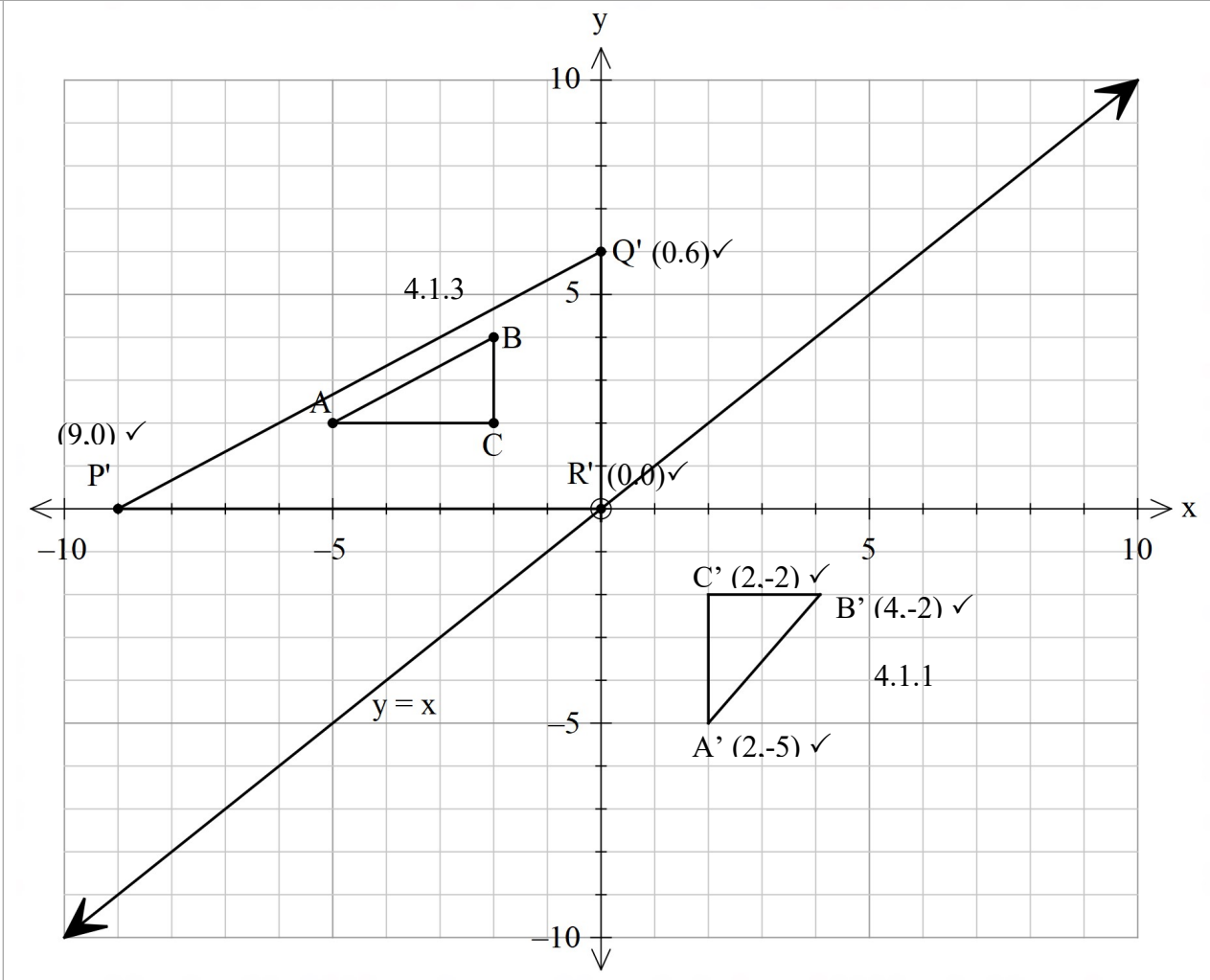
$\hat{C}_1 + \hat{B}_1 = 90°$ ✓

$\therefore \hat{T}_2 = 90°$ < in ΔTBC ✓

✓ <s B and C and reason
✓ Sum to 180 and coint <
✓ $\hat{C}_1 + \hat{B}_1 = 90°$
✓ Co-int < AB//DC
✓ < in ΔTCB (5)

[26]

Question 3				
3.1	$\hat{C}$ common $\hat{B} = \hat{E}$ $\hat{A} = \hat{D}$ ∴ ΔABC /// ΔDEC	Given ✓ Given ✓ < in Δ = 180 ✓ AAA✓	✓ C and reason ✓ B = E and reason ✓ A=D and reason ✓ Similar Δ AAA or equiangular	(4)
3.2	$x = 5$ ✓ $\frac{AB}{DE} = \frac{BC}{EC}$ $\frac{15}{3} = \frac{y+4}{4}$ ✓ $60 = 3y + 12$ $y = 16$ ✓ **or** BC = 4x5 = y+4 20 = y + 4 y = 16	Pythag ✓ ΔABC /// ΔDEC	✓ x=5 ✓ pythag ✓ BC = 20 or similarity ratio ✓ y = 16	(4)
				[8]
Question 4				
4.1.1	ZX = 3cm ✓ WZ = $\sqrt{5^2 - 3^2}$ =4cm ✓	(pythag) ✓	✓ ZX ✓ WZ = 4 ✓ Pythag	(3)
4.1.2	25cm **CA**		✓	(1)
4.1.3	$V_{rectangle}$ = 6.6.21 ✓ = 756 V_{tri}= (½ .6 ✓.6.4 ✓) = 72 V_{total}= 828cm^3 ✓	**CA for height**	✓ 6.6.21 substitute ✓ ½ .6.6.4 substitute ✓ for perp height 4 ✓ answer	(4)
4.1.4	V_{crate} = 25.18.24 = 10800cm^3 $V_{cartons}$ = 12(828) = 9936 cm^3 10800 – 9936 = 864 V_{empty} = 864 cm^3	**CA volume 12x____**	✓ 25.18.24 ✓ Multiply by 12 ✓ Answer 864	(3)
4.2.1	$M : \frac{9}{2}\pi a^2$ ✓ $N : 2\pi a^2$ ✓ $O : \frac{1}{2}\pi a^2$ ✓ ✓		✓ M ✓ N (2 or $\frac{4}{2}$) ✓ O Provide 2/3 marks if they work with full circle not half circles.	(3)
4.2.2	$(M - O) + N$ $4\pi a^2 + 2\pi a^2 = 6\pi a^2$ ✓		✓ **CA** Whole step ✓ answer	(2)
				[16]

Question 5			
5.1			
5.1.1	On graph A'= (2,-5) ✓ B'= (4,-2) ✓ C'=(2,-2) ✓	✓ X3	(3)
5.1.2	A(-5,2)→ P(-3,0) ✓ B(-2,4) → Q(0,2) ✓ C(-2,2) → R(0,0) ✓	✓ X3	(3)
5.1.3	On graph **CA following 5.1.2** P' = (-9,0) ✓ Q' = (0,6) ✓ R' = (0,0) ✓	✓ X3	(3)
5.1.4	1:1:9	✓	(1)
			[10]