Education Bureau
Territory-wide System Assessment 2024
Secondary 3 Mathematics
Marking Scheme

Note (for Section B and C of each sub-paper):

*Mark for Answer:
  (1) The Mark for Answer may be given when there is a correct answer without any work shown.
  (2) If the work shown is incorrect, the Mark for Answer will not be given.
  (3) If the work shown is poorly presented but there is a correct answer, the Mark for Answer may be given.

**Mark for Presentation:
  (1) If the work shown is correct but the answer is incorrect, the Mark for Presentation may be given.
  (2) If the work shown is incorrect, the Mark for Presentation will not be given.
  (3) If the numerical value of the answer is correct but not the approximate value as required by the question, the Mark for Presentation will not be given.
  (4) The Mark for Presentation may include overall work such as mathematical expressions, units, written explanations, use of symbols, etc.

r.t. *xxx* means "accept answers which can be rounded to *xxx*".

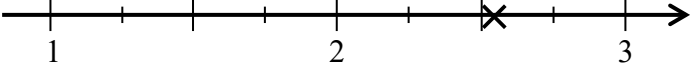Steps that may be skipped are shown in shade.

Alternative suggested answers are shown in boxes.

Section A – Sub-paper 3 (9ME3) (1 mark each)

1. B
2. D (9ME2-2)
3. D (9ME2-4)
4. A (9ME4-3)
5. A
6. B
7. C
8. A (9ME1-8)
9. A (9ME1-9)
10. D (9ME4-10)
11. B (9ME4-11)
12. A (9ME4-13)
13. C
14. C (9ME4-14)
15. C
16. C (9ME2-15)
17. D
18. B (9ME4-18)
19. B (9ME2-19)
20. D (9ME4-20)

Section B – Sub-paper 3 (9ME3)

Question Number	Suggested Answers	Marks	Notes
21. (9ME4-22)	(i) ___+8 000 / 8 000___ represents that there are 8 000 tourists arriving in city A. (ii) ___–2 000___ represents that there are 2 000 tourists leaving city B.	1	Must be all correct
22. (9ME2-22)	0.05	1	
23.		1	(Acceptable range : Between 2.5 and 2.75)
24. (9ME4-24)	The selling price of the tablet computer is ___$3 900___ .	1	No need to consider unit
25.	$x = $ ___25___	1	
26.	$2x^2 - 18xy - 2x$	1	
27. (9ME2-29)	$36x^2 - 1$	1	
28. (9ME2-30)	$\dfrac{25}{4}$	1	
29.	$H = \dfrac{G-4}{3}$	1	
30.	$x > -9$	1	
31.	$x = $ ___39°___	1	No need to consider unit
32.	$x = $ ___144°___	1	No need to consider unit
33.	Q and R	1	Must be all correct
34.	$AB = $ ___13___ units	1	No need to consider unit
35.	$\theta = $ ___29.5°___	1	r.t. 29.5° No need to consider unit

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Question Number	Suggested Answers	Marks	Notes
36. (9ME2-37)	**Table 1** 	Number of push-ups	Frequency
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0 – 19	2
20 – 39	7
40 – 59	11	 **Table 2** 	Number of push-ups	Frequency
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0 – 11	1
12 – 23	2
24 – 35	5
36 – 47	7
48 – 59	5		1(36-1) 1(36-2)	
37. (9ME2-38)	(a) The total profit from the food boxes sold last week __5 920__ dollars. (b) The mean profit of each food box sold last Thursday was __25__ dollars.	1(37a) 1(37b)	No need to consider unit
38. (9ME4-38)	Mean = __4.1 m__ Median = __3.9 m__	1 (38-1) 1 (38-2)	No need to consider unit
39.	The modal class of the price of these 30 tablet computers is \$ __2 000__ – \$ __3 999__ .	1	Must be all correct

Section C – Sub-paper 3 (9ME3)

Question Number	Suggested Answers	Marks	Notes
40.	The interest she will receive = $7\,500 \times (1 + 4\%)^2 - \$7\,500$ = $612	1 (40-1) 1* (40-2) 1** (40-3)	
41.	<table><tr><td>x</td><td>-4</td><td>0</td><td>4</td></tr><tr><td>y</td><td>-5</td><td>-2</td><td>1</td></tr></table> 	1* (41-1) 1 (41-2) 1* (41-3)	Must be all correct In case the data in the above table is incorrect, students can still use the ordered pairs to draw a straight line. The line must pass through $(0, -2)$ and the range of x must include the values from -4 to 4. Correct graph (include: correct position, use ruler to draw the line, pass through the 3 correct points and extend two ends of the line) If the table is incomplete but no mistakes are found and the graph is correct, $(0, 1, 1)$ can be given.

Question Number	Suggested Answers	Marks	Notes
42. (9ME4-46)	$\sin 20° = \dfrac{x}{155}$ $x \approx 53.013122$ $x = 53.0$ m (correct to 3 sig. fig.)	1 (42-1) 1* (42-2) 1** (42-3)	r.t. 53.0 m
43. (9ME4-43)	$\dfrac{7x}{2} \times 15 = 420$ $x = 8$	1 (43-1) 1* (43-2)	
44.	$AB = AD$ (Given) $\angle ABC = \angle ADE$ (Given) $\angle BAC = \angle DAE$ (Common) $\therefore \triangle ABC \cong \triangle ADE$ (ASA)		Or other correct proofs

	Conditions		
	(1) Any correct proof with correct reasons	3	
	(2) Any correct proof with poor presentation, missing reasons or inappropriate reasons	2	
	(3) Incomplete proof with any one correct statement and one corresponding reason	1	
	(4) Incomplete proof	0	

Question Number	Suggested Answers	Marks	Notes
45. (9ME2-46)	The area of $\triangle ABC$ $= (10 - 2) \times (2 - (-4)) \div 2$ $= 24$ sq. units	1 (45-1) 1* (45-2) 1** (45-3)	Or other correct methods

46. (9ME2-42)	$\begin{cases} 2x + 5y = 6 & ...(1) \\ x - 5y = 18 & ...(2) \end{cases}$
	
	$(1) + (2)$,
	  $2x + x = 6 + 18$
	    $3x = 24$
	    $x = 8$
	Substitute $x = 8$ into (2),
	  $8 - 5y = 18$
	    $y = -2$
		
		1 (46-1)
		
		1* (46-2)
		
		1 (46-3)
		1* (46-4)
			
			Correct method (eliminating one of the variables)
			Correct value of x (or y)
			
			Correct method
			Both values are correct

Question Number	Suggested Answers	Marks	Notes
47.	(a) Second Question First Question / Second Question table: <table><tr><td></td><td>A</td><td>B</td><td>C</td></tr><tr><td>A</td><td>AA</td><td>AB</td><td>AC</td></tr><tr><td>B</td><td>BA</td><td>BB</td><td>BC</td></tr><tr><td>C</td><td>CA</td><td>CB</td><td>CC</td></tr></table>	1* (47a)	Must be all correct
	(b) The probability that Kelvin can answer at least one question correctly is $\dfrac{5}{9}$.	1* (47b)	or 0.556