Education Bureau
Territory-wide System Assessment 2025
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 4 (9ME4) (1 mark each)

1. D (9ME1-1)
2. C (9ME1-2)
3. D (9ME3-4)
4. A (9ME1-5)
5. B (9ME1-6)
6. D
7. A (9ME1-7)
8. B
9. D
10. A (9ME3-10)
11. B (9ME3-11)
12. B (9ME1-11)
13. D (9ME3-12)
14. C (9ME3-14)
15. B
16. A
17. A
18. A (9ME3-18)
19. C (9ME1-19)
20. C (9ME3-20)

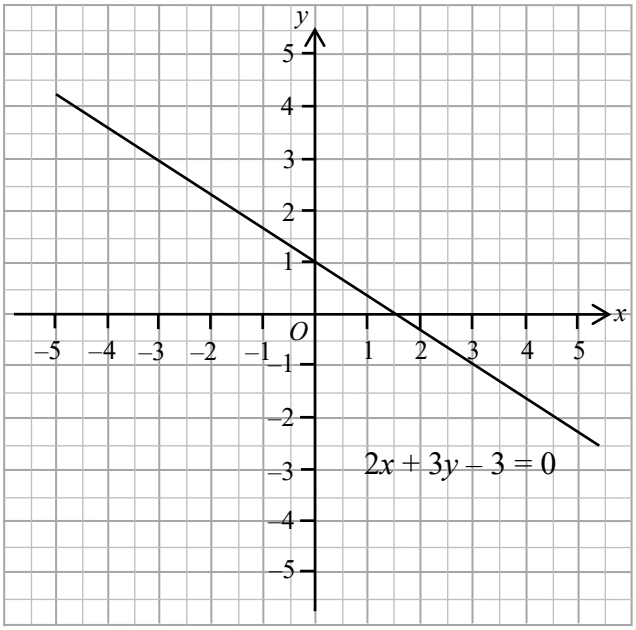
Section B – Sub-paper 4 (9ME4)

Question Number	Suggested Answers	Marks	Notes
21.	$3 \times 3 \times 7$ / $3^2 \times 7$	1	
22. (9ME3-21)	(i) – 2 kg (ii) + 6 / 6 kg	1	Must be all correct
23.	$a =$ 216	1	
24. (9ME3-24)	The marked price of the novel is $380.	1	No need to consider unit
25. (9ME1-25)	Number of basketballs : Number of footballs : Number of volleyballs = 6 : 7 : 5	1	
26.	The value of the 3rd term of the sequence is – 8.	1	
27.	The coefficient of x in the polynomial is – 6.	1	
28. (9ME1-27)	$2x^2 - x - 3$	1	
29. (9ME1-29)	$(7x + 1)(7x - 1)$	1	
30. (9ME1-30)	$h = \frac{1}{6}$	1	
31. (9ME1-31)	$x \geq -5$	1	
32.	The volume of the circular cone is $2\,700\pi$ cm^3.	1	No need to consider unit
33.	$x =$ 35°	1	No need to consider unit
34.	$x =$ 64°	1	No need to consider unit
35.	$x =$ 26°	1	No need to consider unit
36.	The compass bearing of Q from P is N 50° E.	1	

Question Number	Suggested Answers	Marks	Notes
37. (9ME1-37)	(a) The fast-food chain has 18 branches. (b) The highest-selling branch of the fast-food chain sold 95 hamburgers. (c) The mode of the sale of hamburgers at each branch of the fast-food chain yesterday was 60 .	1 (37a) 1 (37b) 1 (37c)	No need to consider unit
38. (9ME3-38)	Mean = 18 Median = 15	1 (38-1) 1 (38-2)	No need to consider unit
39.	The required relative frequency = $\frac{1}{10}$	1	or 0.1

Section C – Sub-paper 4 (9ME4)

Question Number	Suggested Answers	Marks	Notes
40.	The total amount of these 3 items = \$29.8 + \$38.8 + \$24.1 < \$30 + \$40 + \$30 = 100 ∴ Jackie **had** enough money to buy all 3 items.	0 0 No evidence of using estimation strategies nor giving reasonable justification	◆ Exact calculation only ◆ The estimate is given only after exact calculation ◆ Use wrong methods to get the approximation for the price of each item
		1 0 Partial evidence of using estimation strategies, but the solution is incomplete or contains errors	◆ Estimate the price of each item correctly, but the total amount is omitted or wrongly estimated ◆ Estimate the total amount correctly, but the conclusion is omitted or wrong ◆ Correct method used, but errors occurred
		1 1 Estimate with reasonable justification	◆ No need to consider unit/presentation ◆ The conclusion must be correct and aligned with a reasonable explanation
41.	The weight of sugar in the box of lemon tea $= \frac{5}{100} \times 250$ = 12.5 g	1 (41-1) 1* (41-2) 1** (41-3)	

Question Number	Suggested Answers	Marks	Notes
42. (9ME1-41)	<table><tr><td>x</td><td>-3</td><td>0</td><td>3</td></tr><tr><td>y</td><td>3</td><td>1</td><td>-1</td></tr></table> 	1* (42-1) 1 (42-2) 1* (42-3)	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, 1) and the range of x must include the values from -3 to 3. 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.
43. (9ME3-43)	$12h = 288$ $h = 24$	1 (43-1) 1* (43-2)	

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td>44.</td><td>$\angle ABC = \angle EDC$ (Given)
$\angle ACB = \angle ECD$ (Common)
$\angle BAC = 180° - \angle ABC - \angle ACB$ ($\angle$ sum of Δ)
$= 180° - \angle EDC - \angle ECD$
$= \angle DEC$ ($\angle$ sum of Δ)
$\therefore \triangle ABC \sim \triangle EDC$ (AAA)</td><td></td><td>Or other correct proofs</td></tr>
<tr><td></td><td colspan="2">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 without any correct statements — 0</td><td></td></tr>
<tr><td>45.</td><td>$x = \sqrt{44^2 + 33^2}$
$= 55$ cm</td><td>1 (45-1)
1* (45-2)
1** (45-3)</td><td></td></tr>
<tr><td>46.
(9ME3-42)</td><td>$\tan 23° = \frac{115}{x}$
$x \approx 270.9230221$
$x = 271$ m (correct to 3 sig. fig.)</td><td>1 (46-1)
1* (46-2)
1** (46-3)</td><td>r.t. 271 m</td></tr>
<tr><td>47.</td><td>(a)
<table><tr><td>Number of voluntary services</td><td>1 – 2</td><td>3 – 4</td><td>5 – 6</td><td>7 – 8</td><td>9 – 10</td></tr><tr><td>Class mark</td><td>1.5</td><td>3.5</td><td>5.5</td><td>7.5</td><td>9.5</td></tr><tr><td>Frequency</td><td>15</td><td>14</td><td>3</td><td>6</td><td>2</td></tr></table>(b) The mean of the number of volunteer services participated in by 40 volunteer team members in the last school year
$= \frac{1.5 \times 15 + 3.5 \times 14 + 5.5 \times 3 + 7.5 \times 6 + 9.5 \times 2}{15 + 14 + 3 + 6 + 2}$
$= 3.8$</td><td>1* (47a)
1 (47b1)
1* (47b2)
1** (47b3)</td><td>Must be all correct</td></tr>
</table>