Education Bureau
Territory-wide System Assessment 2022
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.
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(1) If the work shown is correct but the answer is incorrect, the Mark for Presentation may be given.
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(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*".

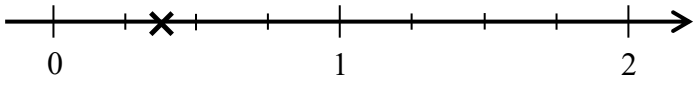
Steps that may be skipped are shown in shade.

Alternative suggested answers are shown in boxes.

Section A – Sub-paper 1 (9ME1) (1 mark each)

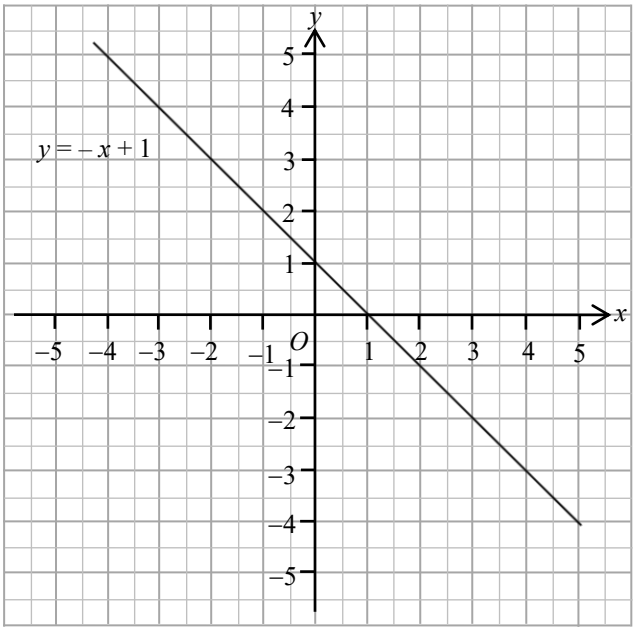
1. B (9ME4-1)
2. D
3. A (9ME4-3)
4. C
5. C (9ME4-5)
6. A (9ME2-6)
7. D
8. B (9ME4-8)
9. B
10. C
11. C
12. A
13. D (9ME2-12)
14. B (9ME2-13)
15. D (9ME2-14)
16. C (9ME2-15)
17. B
18. A (9ME2-18)
19. A
20. D (9ME4-20)

Section B – Sub-paper 1 (9ME1)

Question Number	Suggested Answers	Marks	Notes
21.	$A = -2$ $B = 0$ $C = 4 / +4$	1	Must be all correct
22.	9 000	1	
23. (9ME4-23)		1	(Acceptable range: Between 0.25 and 0.5)
24. (9ME2-24)	$4n$	1	
25.	The constant term of the polynomial is __4 / +4__ .	1	
26.	$(x + 3)(x + 5)$	1	
27. (9ME4-27)	$x =$ __–6__	1	
28.	$\frac{9}{14y}$	1	
29.	$x \leq 6$	1	
30. (9ME2-31)	The surface area of the sphere is __196π__ cm^2 .	1	
31.	The order of rotational symmetry is __6__ .	1	
32.	(a) $x =$ __85__ (b) $y =$ __16__	1	Must be all correct No need to consider unit
33.	$k =$ __150°__	1	No need to consider unit
34.	*GF* / *FG*	1	
35. (9ME2-35)	*P* and *R*	1	Must be all correct
36.	The polar coordinates of point ***P*** are (__2__ , __150°__).	1	Must be all correct and in order
37.	(3) → (2) → (4) → (1)	1	
38. (9ME4-39)	Mean = __7.1__ Median = __7.3__	1 (38-1) 1 (38-2)	
39. (9ME2-39)	(a) The weight of Jack is __76__ kg . (b) There are __5__ students of height over 170 cm. (c) There are __18__ students in class 3A.	1 (39a) 1 (39b) 1 (39c)	No need to consider unit

Section C – Sub-paper 1 (9ME1)

Question Number	Suggested Answers	Marks	Notes
40.	The total weight of the machines $727 + 683 + 898$ $< 800 + 700 + 900$ $= 2\ 400$ kg ∴ Mr Chan **can** transport all machines at the same time in the lift.	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 weight of each machine
		1 0 Partial evidence of using estimation strategies, but the solution is incomplete or contains errors	◆ Estimate the weight of each machine correctly, but the total weight of the machines is omitted or wrongly estimated ◆ Estimate the total weight of the machines 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. (9ME4-40)	The amount = $\$40\ 000 \times (1 + 5\%)^2$ $= \$44\ 100$	1 (41-1) 1* (41-2) 1** (41-3)	

Question Number	Suggested Answers	Marks	Notes
42. (9ME4-42)	<table><tr><td>x</td><td>-3</td><td>0</td><td>3</td></tr><tr><td>y</td><td>4</td><td>1</td><td>-2</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. (9ME2-43)	$\begin{cases} x-2y=-5 & ...(1) \\ x+2y=11 & ...(2) \end{cases}$ (1) + (2) : $2x = 6$ $x = 3$ Substitute $x = 3$ into (2), $3 + 2y = 11$ $y = 4$	 1 (43-1) 1* (43-2) 1 (43-3) 1* (43-4)	 Correct method (eliminating one of the variables) Correct value of x (or y) Correct method Both values are correct

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td>44.</td><td>The height of the prism
$= 275 \div 25$
$= 11$ cm</td><td>1 (44-1)
1* (44-2)
1** (44-3)</td><td></td></tr>
<tr><td>45.</td><td>$x = 2\pi(25)\left(\frac{75°}{360°}\right)$
≈ 32.724923
$= 32.7$ cm (corr. to 3 sig. fig.)</td><td>1 (44-1)

1* (44-2)
1** (44-3)</td><td>

r.t. 32.7 cm</td></tr>
<tr><td>46.
(9ME2-45)</td><td>$AC = DB$ (Given)
$\angle ACB = \angle DBC$ (Given)
$BC = CB$ (Common)
$\therefore \triangle ABC \cong \triangle DCB$ (SAS)</td><td></td><td>Or other correct proofs</td></tr>
<tr><td></td><td>Conditions</td><td></td><td></td></tr>
<tr><td></td><td>(1) Any correct proof with correct reasons</td><td>3</td><td></td></tr>
<tr><td></td><td>(2) Any correct proof with poor presentation, missing reasons or inappropriate reasons</td><td>2</td><td></td></tr>
<tr><td></td><td>(3) Incomplete proof with any one correct statement and one corresponding reason</td><td>1</td><td></td></tr>
<tr><td></td><td>(4) Incomplete proof</td><td>0</td><td></td></tr>
<tr><td>47.</td><td>(a)
<table><tr><td></td><td></td><td>Betty</td><td></td></tr><tr><td></td><td></td><td>Paper (P)</td><td>Scissors (S)</td><td>Rock (R)</td></tr><tr><td>Peggy</td><td>Paper (P)</td><td>PP</td><td>PS</td><td>PR</td></tr><tr><td></td><td>Scissors (S)</td><td>SP</td><td>SS</td><td>SR</td></tr><tr><td></td><td>Rock (R)</td><td>RP</td><td>RS</td><td>RR</td></tr></table>
(b) The probability that the next round is a tie = $\frac{1}{3}$</td><td>1 (45-1)

1* (45-2)</td><td>Must be all correct

or 0.333</td></tr>
</table>

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

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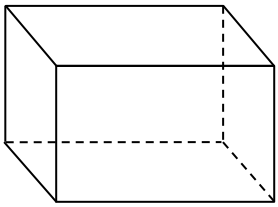
Alternative suggested answers are shown in boxes.

Section A – Sub-paper 2 (9ME2) (1 mark each)

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

Section B – Sub-paper 2 (9ME2)

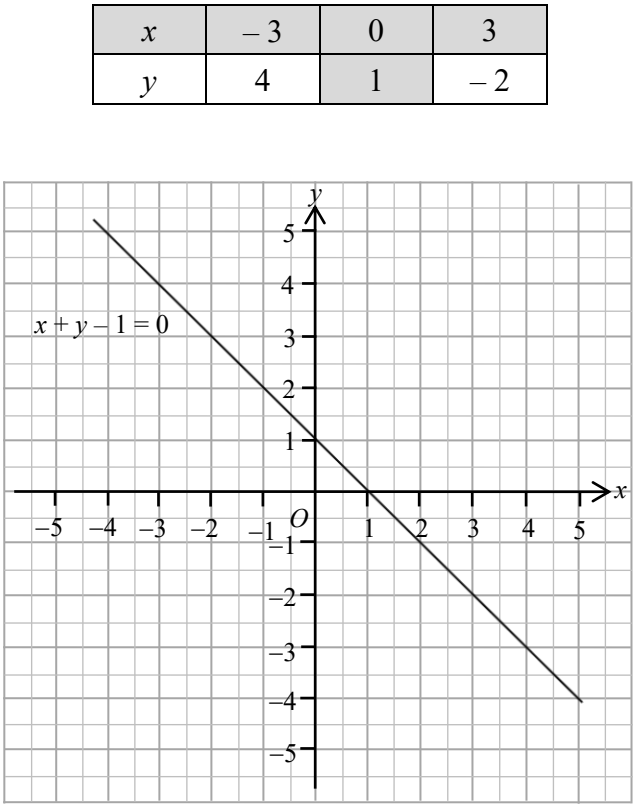
Question Number	Suggested Answers	Marks	Notes
21. (9ME3-21)	-9	1	
22.	$R =$ 4	1	
23.	The ratio of the number of shaded equilateral triangles to that of the white ones = 1 : 3	1	
24. (9ME1-24)	$4n$	1	
25.	$y + xy + y^2$	1	
26.	$x^2 - 5x + 6$	1	
27.	$(3x - 1)^2$ ／ $(3x - 1)(3x - 1)$	1	
28.	approximate solution	1	
29. (9ME3-28)	$c =$ 39	1	
30.	$\frac{11}{8} > \frac{11}{9}$	1	
31. (9ME1-30)	The surface area of the sphere is 196π cm^2 .	1	
32.		1	
33.	(a) $\triangle ABE \sim \triangle ACD$ (b) ratio of 2 sides, included angle	1	Must be all correct
34.	$x =$ 115°	1	No need to consider unit
35. (9ME1-35)	P and R	1	Must be all correct
36.	$x =$ 39.3	1	r.t. 39.3 No need to consider unit

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td>37.
(9ME3-36)</td><td>
<table>
<tr><th colspan="2">Table 1</th></tr>
<tr><th>Number of passengers</th><th>Frequency</th></tr>
<tr><td>10 – 29</td><td>7</td></tr>
<tr><td>30 – 49</td><td>9</td></tr>
<tr><td>50 – 69</td><td>4</td></tr>
</table>
<table>
<tr><th colspan="2">Table 2</th></tr>
<tr><th>Number of passengers</th><th>Frequency</th></tr>
<tr><td>10 – 19</td><td>5</td></tr>
<tr><td>20 – 29</td><td>2</td></tr>
<tr><td>30 – 39</td><td>5</td></tr>
<tr><td>40 – 49</td><td>4</td></tr>
<tr><td>50 – 59</td><td>3</td></tr>
<tr><td>60 – 69</td><td>1</td></tr>
</table>
</td><td>1* (37-1)

1* (37-2)</td><td>Must be all correct

Must be all correct</td></tr>
<tr><td>38.</td><td>The modal class of the age of the 150 members is
70 years old – 79 years old.</td><td>1</td><td>Must be all correct</td></tr>
<tr><td>39.
(9ME1-39)</td><td>(a) The weight of Jack is 76 kg .
(b) There are 5 students of height over 170 cm.
(c) There are 18 students in class 3A.</td><td>1 (39a)
1 (39b)
1 (39c)</td><td>No need to consider unit</td></tr>
</table>

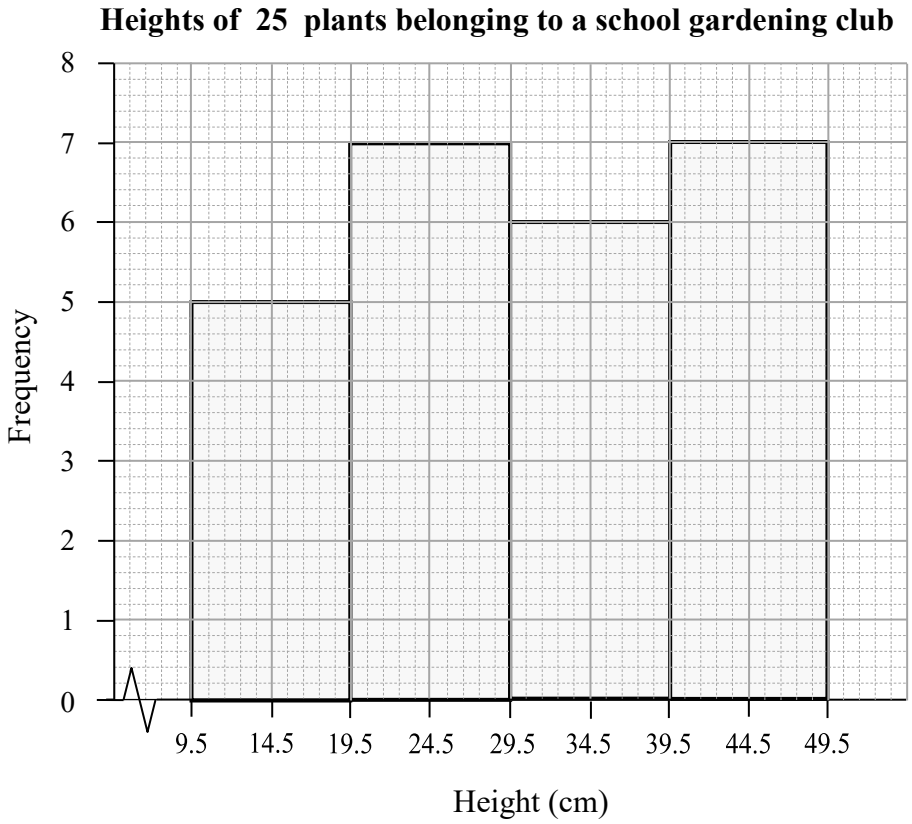
Section C – Sub-paper 2 (9ME2)

Question Number	Suggested Answers	Marks	Notes
40.	The discount per cent $= \frac{560-448}{560} \times 100\%$ $= 20\%$	1 (40-1) 1* (40-2) 1** (40-3)	
41. (9ME3-43)	 	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, 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.

x	– 3	0	3
y	4	1	– 2

Question Number	Suggested Answers	Marks	Notes
42. (9ME3-44)	The height of the loft bed is approximately 6 times the height of the frame. ∴ The height of the loft bed ≈ 0.3 × 6 = 1.8 m	0 0 No evidence of using estimation strategies nor giving reasonable justification	◆ Answer only, without any working steps or written explanation ◆ The explanation is irrelevant or unreasonable
		1 0 Partial evidence of using estimation strategies, but the solution is incomplete or contains mistakes	◆ Using reasonable estimation strategies, but the solution is incomplete. For instance, only the height of the loft bed is estimated as about 6 times the height of the frame ◆ The explanation is reasonable, but the answer is out of the acceptable range ◆ The explanation is reasonable, but calculation mistakes occurred
		1 1 Estimate with reasonable justification	◆ The answer must be supported by a reasonable explanation and within the acceptable range ◆ Accept the height of the loft bed is 6 to 7 times the height of the frame ◆ Acceptable range of the height of the set of railing: 1.8 m to 2.1 m

Question Number	Suggested Answers	Marks	Notes
43. (9ME1-43)	$\begin{cases} x-2y=-5 & ...(1) \\ x+2y=11 & ...(2) \end{cases}$ (2) + (2)： $2x = 6$ $x = 3$ Substitute $x = 3$ into (2), $3 + 2y = 11$ $y = 4$	 1 (43-1) 1* (43-2) 1 (43-3) 1* (43-4)	 Correct method (eliminating one of the variables) Correct value of x (or y) Correct method Both values are correct
44.	The area of the sector $= \pi \times 10^2 \times \frac{140°}{360°}$ ≈ 122.173048 = 122 cm^2 (corr. to 3 sig. fig.)	 1 (44-1) 1* (44-2) 1** (44-3)	 r.t. 122 cm^2
45. (9ME1-46)	$AC = DB$ (Given) $\angle ACB = \angle DBC$ (Given) $BC = CB$ (Common) $\therefore \triangle ABC \cong \triangle DCB$ (SAS)		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	
46.	The area of the square $= (5 - 1)^2$ = 16 sq. units	 1 (46-1) 1* (46-2) 1** (46-3)	 Or other correct methods

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td>47.</td><td>(a)
<table>
<tr><th>Height (cm)</th><th>Class boundaries (cm)</th><th>Class mark (cm)</th><th>Frequency</th></tr>
<tr><td>10 – 19</td><td>9.5 – 19.5</td><td>14.5</td><td>5</td></tr>
<tr><td>20 – 29</td><td>19.5 – 29.5</td><td>24.5</td><td>7</td></tr>
<tr><td>30 – 39</td><td>29.5 – 39.5</td><td>34.5</td><td>6</td></tr>
<tr><td>40 – 49</td><td>39.5 – 49.5</td><td>44.5</td><td>7</td></tr>
</table>
(b)


</td><td>1*
(47-1)

1*
(47-2)</td><td>Must be all correct

Correct histogram
(No marks will be given if any charts other than histogram are shown)</td></tr>
</table>

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

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

Section B – Sub-paper 3 (9ME3)

Question Number	Suggested Answers	Marks	Notes
21. (9ME2-21)	-9	1	
22.	The diameter = 1.43×10^5 km	1	
23. (9ME4-24)	The value of the 4^{th} term of the sequence is -11 .	1	
24.	$x =$ 49 $y =$ 64	1	Must be all correct
25.	$x^3 - x^4$	1	
26.	$(1 + x)(x - 5)$	1	
27. (9ME4-28)	$1 - 4x^2$	1	
28. (9ME2-29)	$c =$ 39	1	
29. (9ME4-30)	$x \geq 4$	1	
30.	Q and R	1	
31.	(a) $m =$ 10 (b) $n =$ 12	1	Must be all correct No need to consider unit
32.	$x =$ 259°	1	No need to consider unit
33.	The coordinates of S' are (2 , 3).	1	Must be all correct
34.	$AB =$ 15 units	1	
35.	$\theta =$ 58.3°	1	r.t. 58.3° No need to consider unit

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td>36. (9ME2-37)</td><td>
<table>
<tr><td colspan="2">Table 1</td></tr>
<tr><td>Number of passengers</td><td>Frequency</td></tr>
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<tr><td>Number of passengers</td><td>Frequency</td></tr>
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<tr><td>60 – 69</td><td>1</td></tr>
</table>
</td><td>1* (36-1)

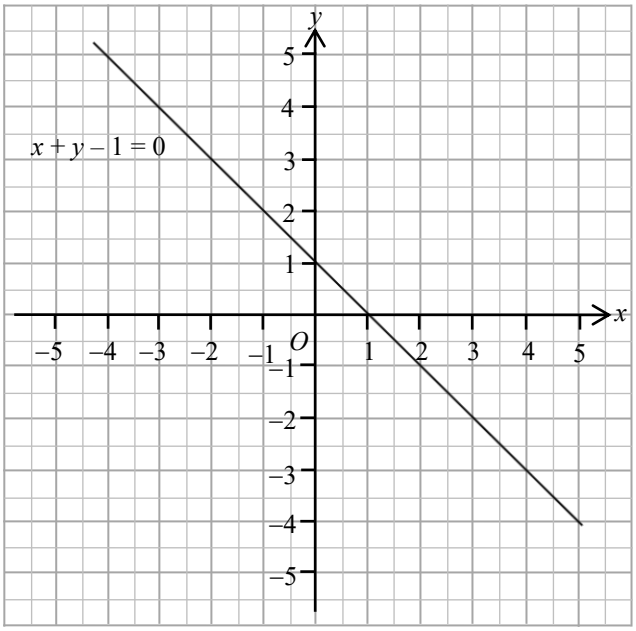
1* (36-2)</td><td>Must be all correct

Must be all correct</td></tr>
<tr><td>37. (9ME4-38)</td><td>(a) There are <u>20</u> books in Emily’s home.
(b) There are <u>178</u> pages in the book with the most pages in Emily’s home.
(c) The median is <u>153</u> pages.</td><td>1 (37a)
1 (37b)

1 (37c)</td><td>No need to consider unit</td></tr>
<tr><td>38.</td><td>The weighted mean mark of Wincy is <u>75.5</u> .</td><td>1</td><td></td></tr>
<tr><td>39.</td><td>The required probability = $\underline{\frac{2}{5}}$</td><td>1</td><td>or 0.4</td></tr>
</table>

Section C – Sub-paper 3 (9ME3)

Question Number	Suggested Answers	Marks	Notes
40.	Let n be the number of years. $3\,500 \times 5\% \times n = 700$ $n = 4$ $\therefore$ It takes 4 years.	 1 (40-1) 1* (40-2) 1** (40-3)	
41.	The medical expense of Mr Chan after two years $= 30\,000 \times (1 + 10\%)^2$ $= 36\,300$ $\therefore$ The medical expense of Mr Chan after two years is \$36 300. OR \$30 000 × 1.1 = \$33 000 \$33 000 × 1.1 = \$36 300 The medical expense of Mr Chan after two years is \$36 300.	 1 (41-1) 1* (41-2) 1** (41-3) 1 1* 1**	 Correct method (multiply 1.1 twice)
42.	(a) $(x^6)^2$ $= x^{12}$ (b) $\dfrac{(x^6)^2}{x^{-4}}$ $= \dfrac{x^{12}}{x^{-4}}$ $= x^{12-(-4)}$ $= x^{16}$	 1* (42a) 1(42b-1) 1* (42b-2)	 Using $\dfrac{y^m}{y^n} = y^{m-n}$ Correct answer (getting marks 1 1)

Question Number	Suggested Answers	Marks	Notes
43. (9ME2-41)	<table><tr><td>x</td><td>– 3</td><td>0</td><td>3</td></tr><tr><td>y</td><td>4</td><td>1</td><td>– 2</td></tr></table> 	1* (43-1) 1 (43-2) 1* (43-3)	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.

Question Number	Suggested Answers	Marks	Notes
44. (9ME2-42)	The height of the loft bed is approximately 6 times the height of the frame. ∴ The height of the loft bed ≈ 0.3 × 6 = 1.8 m	0 0 No evidence of using estimation strategies nor giving reasonable justification	◆ Answer only, without any working steps or written explanation ◆ The explanation is irrelevant or unreasonable
		1 0 Partial evidence of using estimation strategies, but the solution is incomplete or contains mistakes	◆ Using reasonable estimation strategies, but the solution is incomplete. For instance, only the height of the loft bed is estimated as about 6 times the height of the frame ◆ The explanation is reasonable, but the answer is out of the acceptable range ◆ The explanation is reasonable, but calculation mistakes occurred
		1 1 Estimate with reasonable justification	◆ The answer must be supported by a reasonable explanation and within the acceptable range ◆ Accept the height of the loft bed is 6 to 7 times the height of the frame ◆ Acceptable range of the height of the set of railing: 1.8 m to 2.1 m

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td>45.</td><td>$x + 50° + 65° + 35° = 180°$
$x = 30°$</td><td>1 (45-1)
1* (45-2)</td><td>No need to consider unit</td></tr>
<tr><td>46.
(9ME4-44)</td><td>$\angle BED + 295° = 360°$ (angles at a point)
$\angle BED = 65°$
$\because \ \angle BED + \angle ABE = 65° + 115°$
$= 180°$
$\therefore \ AC // DE$ (int. $\angle$s supp.)</td><td></td><td>Or other correct proofs</td></tr>
<tr><td></td><td colspan="2">Conditions</td><td></td></tr>
<tr><td></td><td>(1) Any correct proof with correct reasons</td><td>3</td><td rowspan="4"></td></tr>
<tr><td></td><td>(2) Any correct proof with poor presentation, missing reasons or inappropriate reasons</td><td>2</td></tr>
<tr><td></td><td>(3) Incomplete proof with any one correct statement and one corresponding reason</td><td>1</td></tr>
<tr><td></td><td>(4) Incomplete proof</td><td>0</td></tr>
<tr><td></td><td colspan="2"></td><td></td></tr>
<tr><td>47.</td><td>(a)
<table>
<tr><td>Result (Mark)</td><td>1 – 25</td><td>26 – 50</td><td>51 – 75</td><td>76 – 100</td></tr>
<tr><td>Class mark (Mark)</td><td>13</td><td>38</td><td>63</td><td>88</td></tr>
<tr><td>Frequency</td><td>3</td><td>9</td><td>12</td><td>6</td></tr>
</table>
(b) The mean = $\dfrac{13\times3+38\times9+63\times12+88\times6}{30}$
$= 55.5$ marks</td><td>1* (47a)
1 (47b1)
1* (47b2)
1** (47b3)</td><td>Must be all correct
Correct method</td></tr>
</table>

Education Bureau
Territory-wide System Assessment 2022
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*".

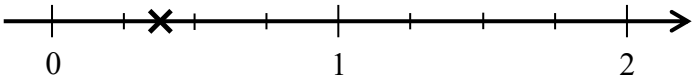
Steps that may be skipped are shown in shade.

Alternative suggested answers are shown in boxes.

Section A – Sub-paper 4 (9ME4) (1 mark each)

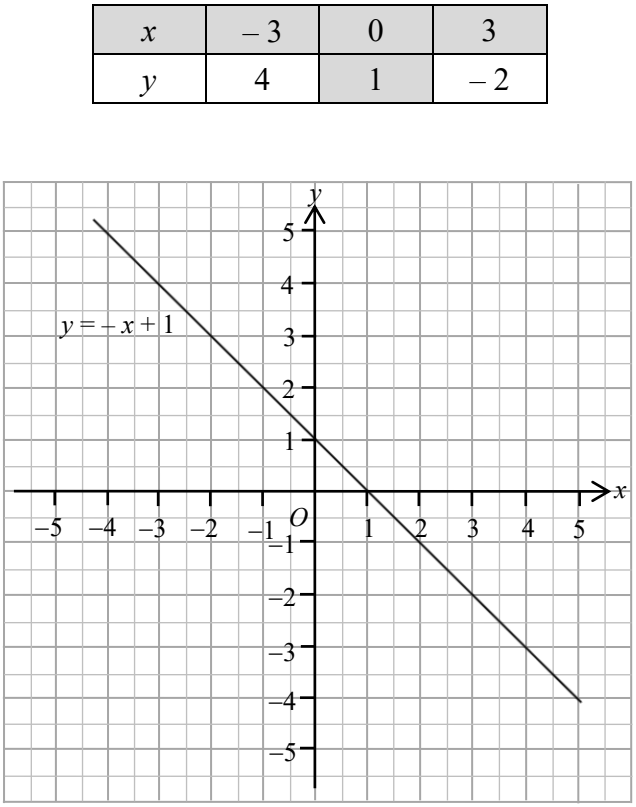
1. B (9ME1-1)
2. C
3. A (9ME1-3)
4. D
5. C (9ME1-5)
6. D (9ME3-6)
7. A (9ME3-9)
8. B (9ME1-8)
9. C (9ME3-8)
10. D (9ME3-10)
11. A
12. B (9ME3-11)
13. C
14. B
15. D
16. A (9ME3-16)
17. C
18. A
19. B (9ME3-19)
20. D (9ME1-20)

Section B – Sub-paper 4 (9ME4)

Question Number	Suggested Answers	Marks	Notes
21.	(i) 13/+13°C represents that the average temperature in June was 13 degrees Celsius. (ii) –2 °C represents that the average temperature in January was 2 degrees Celsius below zero.	1	Must be all correct
22.	1.03	1	
23. (9ME1-23)		1	(Acceptable range: Between 0.25 and 0.5)
24. (9ME3-23)	The value of the 4^{th} term of the sequence is –11 .	1	
25.	$9x + y$ / $y + 9x$	1	
26.	$(4 + x)(4 – x)$	1	
27. (9ME1-27)	$x =$ –6	1	
28. (9ME3-27)	$1 – 4x^2$	1	
29.	$x = 6y – 6$ / $x = 6(y – 1)$	1	
30. (9ME3-29)	$x \geq 4$	1	
31.	The circumference of the circle is 58π cm.	1	
32.	The number of axes of symmetry is 2 .	1	
33.	$x =$ 40°	1	No need to consider unit
34.	$\angle AFE$ / $\angle EFA$ / $\angle BGH$ / $\angle HGB$	1	
35.	$x =$ 45	1	No need to consider unit
36.	The true bearing of Q from P is 320° .	1	
37.	(i) Discrete data (ii) Continuous data	1	Must be all correct

Question Number	Suggested Answers	Marks	Notes
38. (9ME3-37)	(a) There are 20 books in Emily's home. (b) There are 178 pages in the book with the most pages in Emily's home. (c) The median is 153 pages.	1 (38a) 1 (38b) 1 (38c)	No need to consider unit
39. (9ME1-38)	Mean = 7.1 Median = 7.3	1 (39-1) 1 (39-2)	

Section C – Sub-paper 4 (9ME4)

Question Number	Suggested Answers	Marks	Notes
40. (9ME1-41)	The amount = \$40 000 × $(1 + 5\%)^2$ = \$44 100	1 (40-1) 1* (40-2) 1** (40-3)	
41.	The actual distance between spot *A* and spot *B* = 4.5 × 10 000 ÷ 100 = 450 m	1 (41-1) 1* (41-2) 1** (41-3)	
42. (9ME1-42)	 	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.

x	– 3	0	3
y	4	1	– 2

Question Number	Suggested Answers	Marks	Notes
43.	The volume of Box A $= 3\,600 \times \left(\frac{5}{10}\right)^3$ $= 450\ \text{cm}^3$	1 (43-1) 1* (43-2) 1** (43-3)	
44. (9ME3-46)	$\angle BED + 295° = 360°$ (angles at a point) $\angle BED = 65°$ $\because\ \angle BED + \angle ABE = 65° + 115°$ $= 180°$ $\therefore\ AC \,//\, DE$ (int. $\angle$s supp.)		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	
45.	The width of the screen $= \sqrt{12.5^2 - 10^2}$ $= 7.5$ cm	1 (45-1) 1* (45-2) 1** (45-3)	
46.	$\tan\theta = \frac{AB}{BC}$ $\tan\theta = \frac{0.45}{2.19}$ $\theta \approx 11.611486°$ $\theta = 11.6°$ (Correct to 3 significant figures) $\therefore$ The angle of elevation θ of the top of the thermometer point A that he is looking at is 11.6°.	1 (46-1) 1* (46-2) 1** (46-3)	r.t. 11.6°

<table>
<tr><th>Question Number</th><th>Suggested Answers</th><th>Marks</th><th>Notes</th></tr>
<tr><td rowspan="3">47.</td><td>Half of the number of the months is 6 in last year. There had only 4 months with stationery expenditure over $780. Therefore, it is not true that more than half of the months with stationery expenditure had over $780.
OR</td><td>0 0</td><td>◆ Without any reasonable explanation
◆ Conclusion is incorrect</td></tr>
<tr><td>Half of the number of the months is 6 in last year. There had 8 months with stationery expenditure of less than $780. Therefore, it is not true that more than half of the months with stationery expenditure had over $780.</td><td>1 0</td><td>◆ Explanation is reasonable but incomplete
◆ Explanation is reasonable but no conclusion is drawn</td></tr>
<tr><td>∴ I disagree with the manager’s claim.</td><td>1 1</td><td>◆ Explanation is reasonable and the conclusion is correct</td></tr>
</table>