

Education and Manpower Bureau
Territory-wide System Assessment 2006
Secondary 3 Mathematics
Marking Scheme

Question No.	Answers	Marks	Remarks
1	C	1	
2	D	1	
3	B	1	
4	C	1	
5	B	1	
6	C	1	
7	C	1	
8	D	1	
9	D	1	
10	C	1	
11	D	1	
12	D	1	
13	C	1	
14	C	1	
15	B	1	
16	B	1	
17	C	1	
18	D	1	
19	C	1	
20	C	1	
21	B	1	
22	1 200	1	
23	$\underline{5} : \underline{3}$	1	Must be all correct
24	$4n$	1	
25	-2	1	
26	$-6x + 3x^2 - 12x^3$	1	Accept $-12x^3 + 3x^2 - 6x$, etc.
27	$(x - 3)^2$	1	Accept $(x - 3)(x - 3)$, etc.
28	$5(x + 1) = 90$	1	Accept $5x + 5 = 90$, etc.

Question No.	Answers	Marks	Remarks
29	4	1	
30	$x = \underline{10}$, $y = \underline{16}$	1	Must be all correct
31	55	1	
32	32	1	
33	L_1, L_4	1	Must be all correct, order of arrangement is not important
34	(1 , 2)	1	
35	38.7°	1	
36	133	1	
37	30	1	
38	$\angle BAF / \angle FAB$	1	
39	$A \cdot C$	1	Must be all correct, order of arrangement is not important
40	3, 60° respectively	1	Must be all correct
41	$(2) \rightarrow (4) \rightarrow (1) \rightarrow (3)$	1	Answers must be in correct order
42(a)	C	1	
42(b)	55	1	
42(c)	14	1	
43	<p>Total number of visitors $\approx 20\,000 \times 5$ $= 100\,000$</p> <p>OR</p> <p>\therefore The number of visitors each month is close to 20 000. \therefore The total number of visitors is about $20\,000 \times 5 = 100\,000$.</p>	<p>1</p> <p>1</p>	Other reasonable methods of estimation are also acceptable 1 mark for the estimated value

Question No.	Answers	Marks	Remarks
44	$\begin{cases} x + y = 1 & \dots(1) \\ x = 2y + 4 & \dots(2) \end{cases}$ <p>Sub (2) into (1), $(2y + 4) + y = 1$ $y = -1$</p> <p>Sub $y = -1$ into (2), $x = 2(-1) + 4$ $= 2$ $\therefore x = 2$ and $y = -1$</p> <p>OR</p> $\begin{cases} x + y = 1 & \dots(1) \\ x = 2y + 4 & \dots(2) \end{cases}$ <p>From (2), $x - 2y = 4$ $\dots(3)$</p> <p>(1) – (3) $3y = -3$ $y = -1$</p> <p>Sub $y = -1$ into (1), $x = 2(-1) + 4$ $= 2$ $\therefore x = 2$ and $y = -1$</p>	<p>1</p> <p>1*</p> <p>1*</p>	<p>Accept other methods of substitution</p> <p>Answer mark (*please see remarks below)</p> <p>Answer mark (*please see remarks below)</p> <p>Accept other methods by eliminating either x or y from the pair of simultaneous equations</p>
45	<p>The amount that David will receive</p> $= \$2\,000 \times (1 + 10\%)^3$ $= \$2\,662$	<p>1</p> <p>1*</p> <p>1**</p>	<p>Method mark: other correct methods are also acceptable</p> <p>Answer mark (*please see remarks below)</p> <p>Presentation mark (** please see remarks below)</p>
46(a)	$E = 250 + 120n$ $120n = E - 250$ $n = \frac{E - 250}{120}$	1	1 mark for expressing n as the subject of the formula
46(b)	$n = \frac{1090 - 250}{120}$ $n = 7$ <p>OR</p> $1090 = 250 + 120n$ $n = 7$	<p>1</p> <p>1*</p>	<p>1 mark for substituting the value of E into the formula obtained in (a)</p> <p>Answer mark (*please see remarks below)</p>

Question No.	Answers	Marks	Remarks
47(a)	Circumference = $2\pi r$ $2\pi r = 10\pi$ $r = 5$	1 1*	Method mark: other correct methods are also acceptable Answer mark (*please see remarks below)
47(b)	Area of the circular flower-bed $= \pi r^2$ $= \pi(5)^2 \text{ m}^2$ $= 25\pi \text{ m}^2$	1 1* 1**	Method mark: other correct methods are also acceptable Answer mark (*please see remarks below) Presentation mark (** please see remarks below) 1 mark for part (a) and part (b)
48	Let x m be the length of the signboard. $x^2 + 0.8^2 = 1.7^2$ $x = 1.5$ The length of the signboard is 1.5 m. OR The length of the signboard $= \sqrt{1.7^2 - 0.8^2} \text{ m}$ $= 1.5 \text{ m}$	1 1* 1**	Method mark: other correct methods are also acceptable Answer mark (*please see remarks below) Presentation mark (** please see remarks below)
49	In $\triangle ABC$ and $\triangle ADC$, $\angle ABC = \angle ADC = 90^\circ$ $AB = AD$ (given) $AC = AC$ (common) $\therefore \triangle ABC \cong \triangle ADC$ (RHS)	1 1 1	1 mark for method 1 mark for reasons Deduct 1 mark for missing/wrong reasons 1 mark for RHS Other correct proofs are also acceptable

Question No.	Answers	Marks	Remarks
50	The mean height $= \frac{170 + 179 + 184 + 185 + 197}{5} \text{ cm}$ $= 183 \text{ cm}$	1 1* 1**	Method mark: other correct methods are also acceptable Answer mark (*please see remarks below) Presentation mark (** please see remarks below)
51(a)	10 300, 10 100, 10 100 respectively	1	Must be all correct
51(b)	The scale of weekly sale does not start from 0. OR The heights of the bars are not proportional to the weekly sales.	1	Other reasonable explanations are also acceptable

Remarks: *Answer mark - (1) Just the correct answer without showing mathematical expression, award the answer mark.

(2) Mathematical expression is incorrect, do not award the answer mark.

(3) Poor presentation in the mathematical expression or workings but correct answer given, award the answer mark.

**Presentation mark: (1) Mathematical expression is correct, but wrong answer given, award the presentation mark.

(2) Mathematical expression is incorrect, do not award the presentation mark.

(3) Presentation mark includes holistic assessment of mathematical expression, units (missing unit or wrong unit), explanation, statement/conclusion and use of symbols, etc.