Markers' Report

Subject : Mathematics
Paper No : 1
Level/Stream : Secondary 3 Express
Marker : Mark Lim & Chin Zhi Hao

General Comments (for difficulty of paper, etc):
The paper is generally difficult for the lower ability students.
Graph reading and sketching prove challenging for the students.

Qn	Markers Feedback / Comments / Misconception / Errors	Total possible mark for each question	Put a ✓ if the comment applies to some of the students in the class. Put ✓✓ if the comment applies to > 50% of students					
			All classes	3-7	3-8	3-9 +SBB	3-10	3-11
1	- Well done for this question - Students place $4\frac{1}{6}\%$ at the front	2	✓✓ ✓					
2	- Students uses compound interest to evaluate - Students who uses simple interest formula, stopped when they found $12574.20	2	✓	✓	✓			
3	- Done well for changing all numbers to 1 s.f. - Changing the final answer back of 0.25 to 0.3 - Students changing to 1 s.f. e.g. 4.45 to 4.00	3	✓ ✓				✓✓	
4a	Students conversion from only multiplying by the factor of π	1	✓					
4b	- Generally done well - Students conversion from only multiplying by the factor of 180	1	✓✓	✓		✓		
5	- Students can apply the formula for length segment but not able to manipulate to get the two required answers	3				✓		✓
6	- Generally done well - Students did not provide the correct rounding to 1 d.p.	2	✓✓ ✓					

7	- Student did not apply the law of indices but instead multiply $\frac{1}{49}\times\sqrt{7}$ to get the numerical number - Student attempted to guess the power of x from $0.05399 = 7^x$	2	✓ ✓					
8	- Students stopped when they found the compound interest of \$8499.3496 - Use of simple interest - Students are not able to correct the answers to nearest cents	3	✓ ✓✓		✓			
9a	- Mixed up with $y = \frac{1}{x}$	1	✓					
9b	- Generally done well	1	✓✓					
9c	- Mixed up with $y = \frac{1}{x}$	1	✓					
10	- Students used general formula to factorise $2x^2 + 9x - 5 = 0$ - Students did not reject the answer when x = −5 which would be good if indicated	3	✓ ✓✓					
11a	- Generally done well - Students changed the inequalities sign when there was no multiplication / division of negative numbers	1	✓✓				✓	
11b	- Students indicated 1 as one of the prime numbers hence resulted in giving the wrong conclusion to the claims	2	✓					
12a	- Students were not able to give the negative ratio for the cosine ratio	1	✓✓					
12b	- Use of sine rule / cosine rule when a right-angle triangle is given	2				✓		✓
13a	- Simplification of indices (e.g. $a^6 \div a^{-6} = a^0$) resulted in lost of marks - Students did not simplify b^0	2	✓	✓		✓		

13b	- Generally done well - Marks were no wards if there are negative power (e.g. $5a^{-5}$ or $\frac{a^{-5}}{0.2}$)	2	✓		✓		✓	
14	- Not able to show the proper presentation in statement format - Incorrect or no reasons given (e.g. similar angle, similar side) - Students assumed that *RC* = 3 and used that in their proving for *AC* = *AS* which resulted in the use of wrong congruency tests - Student used Pythagoras' theorem to find RS and equate to *BC* was incorrect also suggested the students' assumption that *AC* was also 12 cm	3	✓✓ ✓✓			✓✓		✓
15	- Not done well as students do not know how to start - Students had the misconception that $(3x-3y)^2=3(x-y)^2$ - For students who started with $(3x-3y)^2$, they wrote the expression as $(3x-3y)(3x+3y)$	2	✓✓ ✓		✓✓	✓✓		✓✓
16a	- Handful of students committed an manipulation error e.g. $10=-(0-5)(2(0)+b)$ $b=5$	1	✓					
16b	- Generally done well	1	✓					
16c	- Students used complete the square method to get the max value of *y*. - Students were not able to correctly find the Line of symmetry. Error committed $\frac{5-(-1)}{2}=3$	2		✓	✓ ✓		✓	✓
17a	- Well done	1	✓✓					
17b	- Students did not attempt this part question - Students did not realise that the gradient of represent the speed of the object and continue to find the exact point at *t* = 40.	2	✓			✓		✓

	- Students did not ignore the negative gradient		✓					
17c	- Many students attempted to find the area under graph to find total distance travel and divide by the time taken - Students only used 50 km as the total distance instead of adding the return journey of another 50 km	2	✓ ✓✓					
18a	Some students have the wrong shape of graph, doing exponential or cubic graphs. A few students plotted the graph, but failed to realise it's a quadratic graph.	2	✓					
18b	Some students draw a curve instead of a straight line. Many explained without drawing a line.	2	✓✓					
19a	Many students can complete the square. Some students do $-[6.5^2 + 9]$ to get –51.25 instead of the correct answer.	2		✓		✓	✓	✓
19b	Many students ignore the "Hence" requirement of the question and use quadratic formula.	3	✓✓					
20a	Many students do not know billion is 10^9. A few students write the working as 1.41 billion – 31.2 million.	2	✓			✓	✓	
20b	Many students don't understand the question, either dividing the wrong way, or using part (a) answer instead.	2		✓	✓	✓✓	✓	✓✓
21a	A number of students just give 265.	1	✓					
21b	Most students can get the formula.	1	✓✓					
21c	Most students are able to get 64 by solving or trial and error.	1	✓✓					
21d	Some students left blank or did not explain much.	1	✓					
22	Most are able to draw a quadrilateral. Some did not draw bisectors accurately. Few are able to locate the region for P. Some just put a dot.	5	✓					
23a	Most are able to show by substituting y = 8 or using gradient.	1	✓✓					
23b	Very well done. Only a few substituted the wrong numbers.	2	✓✓					
23c	Few students got it correct. Some students tried Add Math methods to get the answer. (Example: Using equation of perpendicular bisector)	3	✓					
24a	Generally well done.	1	✓✓					

24b	Many are not able to visualise the required angle. Some did $12^2 - 9^2$ instead of adding.	3	✓					
25a	A number of students divided by 2 instead of 2.2.	1				✓	✓	✓
25b	Many find the perimeter of the sector OQR instead of just the shaded region. (Adding 17 instead of 12 and 11)	2	✓					
26a	Generally well done. A few inverted the fractions and so got the wrong answer.	1	✓✓					
26b	Some put 14 x 30 (distance = speed x time) instead of calculating area under graph.	2				✓		
	A few used subtraction of area instead.							
26c	Generally poorly done. Only a few students calculated the instantaneous speed. Some students mistaken 26 m/s as the average speed.	2	✓					