

# Exam Strategies

1. Remember to write down your school code, class and class number at the bottom of the first page of the exam paper.
2. There are about 50 questions in an exam paper and the time allowed is 65 minutes. You should therefore spend about 1 minute for each question and allow 15 minutes for final checking.
3. Do your rough work on the rough work sheet.
4. Show your work clearly and neatly.
5. Do not be struck in any one of the questions. Skip it and go on to another one.
6. When solving application problems, read the questions carefully.
7. When you are asked to "Show your working", you should show formulas and steps rather than just writing down the answers. In case you do not get the correct answer, you can get the marks for the correct methods used. Besides, make sure you have given a unit, if any, to each answer.

Example: Mr. Lee deposits 15 000 dollars to a bank. If the annual interest rate is 0.3% and the interest is calculated once a year, find the amount he will get after four years. (Correct the answer to the nearest dollar.)

(Show your working)

Good presentation:

Amount $= 15\,000 \times (1 + 0.3\%)^4$ $= 15\,181$ dollars
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Or

$15\,000 \times (1 + 0.3\%)^4$ $= 15\,181$ dollars The amount is 15 181 dollars.
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Poor presentation resulting in mark deduction:

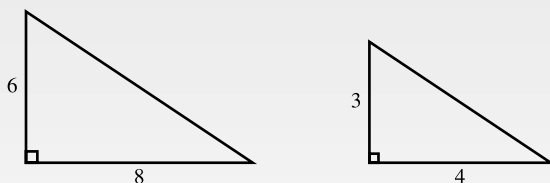
The amount is 15 181 dollars.
-------------------------------

Or

$15\,000 \times (1 + 0.3\%)^4$ $= 15\,181$ dollars
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9. Although the latest exemplars of Key Stage 3 do not involve filling in mathematical terms, students should still keep them in mind in order to avoid mark deduction.
10. There are lots of formulas throughout the curriculum from S.1 to S.3. Students should remember and understand all of them, without ambiguity.
11. Explanations and reasons are necessary when dealing with a proof.

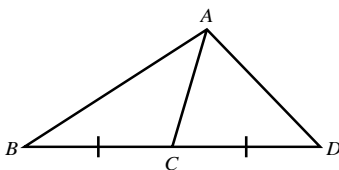
Example 15: The follow pair of triangles is similar. The reason is \_\_\_\_\_ .



✓ Correct	✗ Wrong
2 sides prop. and inc. $\angle$	SAS

4. Make clear the meanings of medians, perpendicular bisectors, altitudes and angle bisectors in a triangle.

Example 16: In  $\triangle ABD$ ,  $BC = CD$ .  $AC$  is a \*median /perpendicular bisector /altitude of  $\triangle ABD$ . (\*Circle the correct answer.)



✓ Correct	✗ Wrong
median	perpendicular bisector

5. When applying the slope formula  $m = \frac{y_2 - y_1}{x_2 - x_1}$ , beware that  $x_1$  and  $y_1$  correspond to one point, while  $x_2$  and  $y_2$  correspond to another point.

Example 17: Given that  $A(12, 6)$  and  $B(3, 9)$ . Find the slope of  $AB$ .

✓ Correct	✗ Wrong
$\begin{aligned} \text{The slope of } AB &= \frac{9 - 6}{3 - 12} \\ &= -\frac{1}{3} \end{aligned}$	$\begin{aligned} \text{The slope of } AB &= \frac{9 - 6}{12 - 3} \\ &= \frac{1}{3} \end{aligned}$

# TSA Mathematics Mock Exam Papers

## Secondary 3 Mock Paper 1

### Instructions:

1. There are 53 questions in this test.
2. Answer all questions.
3. The time allowed is 65 minutes.
4. Write your answers in this question booklet.

(a) Multiple choice questions:

Mark your answers by putting a “✓” in the “○”, e.g.:

$$2 + 3 =$$

- A. 4      B. 5      C. 6      D. 7

(b) Questions in which you are asked to “Show your working”:

Write your mathematical expressions/equations, answers and statements/conclusions in the space provided. There is NO need to show your rough work.

(c) Other types of questions:

Answer as required in the space provided.

5. Do your rough work on the rough work sheet provided.
6. Write your Name, Class and Class Number in the spaces below.

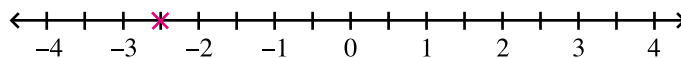
Name \_\_\_\_\_ Class \_\_\_\_\_ Class No. \_\_\_\_\_

### Marker's Use Only

Dimension	Question	Score
Number and Algebra	1 – 24	/ 31
Measure, Shape and Space	25 – 48	/ 42
Data Handling	25 – 53	/ 8
Total		/ 81

Marker's Use Only

6. Mark  $-2.5$  with a 'x' on the following number line.




1 mark

7. A watch shop is doing a promotion. Every goods are given a 10 percent off discount. Mary buys a watch with \$288, **saving** \_\_\_\_\_ dollars.




1 mark

8. Mr. Lee deposits 15 000 dollars to a bank account. The interest is compounded yearly with an annual interest rate of 0.3%. Find the amount he will get after four years, correct to the nearest dollar.

(Show you working.)

1 mark

1 mark

1 mark

9. There are 200 emails in Johnny's email account. If the number of emails in the inbox and the junk mail box are in the ratio of 5 : 2, there are \_\_\_\_\_ emails in the junk mail box.

1 mark

10. A party is held and  $x$  pizzas are ordered for the party. There are 8 pieces for each pizza. If there are 15 people sharing the pizzas, each person gets \_\_\_\_\_ piece of pizza.

1 mark

## Revision Cards Notes (1)

- Tear off the cards and bind them with a rope to make handy revision cards.
- You can put the cards in the pockets and take out the cards any time for revision.

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## Manipulation of Directed Numbers (1)

(a) Addition and subtraction

$$(\pm a) + (+b) = \pm a + b$$

$$(\pm a) + (-b) = \pm a - b$$

$$(\pm a) - (+b) = \pm a - b$$

$$(\pm a) - (-b) = \pm a + b$$

Example:

$$\begin{aligned} (+11) + (+3) &= 11 + 3 \\ &= 14 \end{aligned}$$

$$\begin{aligned} (+17) + (-5) &= 7 - 5 \\ &= 2 \end{aligned}$$

$$\begin{aligned} (-8) + (+12) &= -8 + 12 \\ &= 4 \end{aligned}$$

$$\begin{aligned} (-6) + (-9) &= -6 - 9 \\ &= -15 \end{aligned}$$

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## Significant Figures

(a) Integers

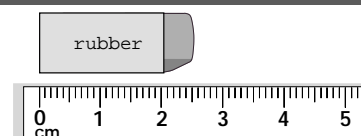
- The '0's after the last non-zero digit are not significant figures.
- The '0's between two non-zero digits are significant figures.

(b) Decimals

- The '0's between the decimal point and the first non-zero digit are not significant figures.
- The '0's after the first non-zero digit are significant figures.

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## Measurements and Errors



When we use tools to take measurements, the maximum error = (accuracy of the tool)  $\times$  0.5.

For the actual value of the measurement,  
upper limit = measured value + maximum error,  
lower limit = measured value - maximum error,

$$\text{relative error} = \frac{\text{maximum error}}{\text{measured value}}$$

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## Interest

(a) Simple interest

where \$ $A$  is the total amount, \$ $P$  is the principle, \$ $I$  is the simple interest,  $r\%$  is the annual interest rate and  $t$  is number of years for deposition.

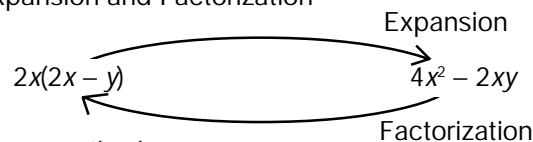
(b) Compound interest

where \$ $A$  is the total amount, \$ $P$  is the principle, \$ $I$  is the simple interest,  $r\%$  is the annual interest rate,  $n$  is the number of periods per year and  $t$  is number of years for deposition.

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## Polynomials

(a) Expansion and Factorization



(b) Cross method

Example: Factorize  $6x^2 + 23x + 21$ .

$$\begin{array}{r} 2x \quad \quad \quad + 3 \\ 3x \quad \quad \quad + 7 \\ \hline +14x \quad \quad \quad + 9x = +23x \end{array}$$

$$\therefore 6x^2 + 23x + 21 = (2x + 3)(3x + 7)$$

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## Linear Equations in Two Unknowns

If an equation involves two unknowns of power 1, then the equation is called a linear equation in two unknowns.

Example:

$2x + 4y = 8$  is a linear equation with  $x$  and  $y$  as unknowns.

There are infinitely many solutions for linear equations in two unknowns. They can be expressed in ordered pairs.

Example:

$(0, 2)$ ,  $(1, 1.5)$ ,  $(2, 1)$  are solutions of the equation  $2x + 4y = 8$ .

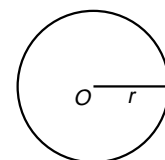
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## Circumference and Area of Circles

(a) Circumference

$$C = 2\pi r$$

where  $C$  is the circumference and  $r$  is the radius.



(b) Area

$$a = \pi r^2$$

where  $a$  is the area of circle and  $r$  is the radius.

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# TSA Maths Mock Exam Papers

全港性系統評估數學模擬試卷

