HKDSE MOCK EXAM PAPER
MATHEMATICS Compulsory Part
Question-Answer Book
Set 1

Time allowed: 2 hours 15 minutes

Name:_____ Marks:_____/105

Instructions

1. This paper must be answered in English.
2. Unless otherwise specified, all working must be clearly shown.
3. Unless otherwise specified, numerical answers must be exact.
4. This paper is for **internal use** only.
5. All questions are constructed by Mok Owen.
6. The mock paper is composed of 3 parts, including Section A(1), Section A(2) and Section B. Each part consist of 35 marks each.

Section A(1) (35 marks)

1. Simplify $\dfrac{(mn^{-2})^3}{m^{-1}}$ and express your answer with positive indices. (3 marks)

2. Make a the subject of the formula $\dfrac{a+1}{a-1} = \dfrac{b+c}{d-c}$. (3 marks)

3. Factorize

   (a) $4x^2 + 4xy + y^2$,

   (b) $12x^2 + xz + z^2$,

   (c) $(4x^2 + 4xy + y^2) - (12x^2 + xz + z^2)$.

   (3 marks)

4. Given that $a : b = 5 : 6$ and $2b = 3c$.

   (a) Find $a : b : c$.

   (b) Find the value of $\dfrac{9a + 2b + 3c}{a + b + c}$.

   (3 marks)

5. Given a stock X in the market at \$x per unit at instance. It is known that a person could buy a certain amount of stock X at this price level. What is the percentage change in amount affordable for that person if the stock price is increased by 20% ? (4 marks)

6. Consider the compound inequality

$$\begin{cases} \dfrac{x}{x+1} \leq 5 \\ 3x + 2 \leq 0 \end{cases}$$

   (a) Solve the inequality system.

   (b) Write down the number of integers satisfying the inequality.

   (4 marks)

7. Let $f(x) = x^2 - kx - (k+1)$ has equal roots. Find

   (a) k,

   (b) the possible y-intercepts of $y = kf(x)$.

(5 marks)

8.