# HKDSE Mock Practice

Test Paper No.: 001

Section A(1) – 35 marks

1. Simplify $\frac{(x^3y^{-2})^2}{x^2y^4}$ and express your answer with positive indices.
(3 marks)

化簡 $\frac{(x^3y^{-2})^2}{x^2y^4}$ 並以正指數表示你的答案。

2. Simplify $\frac{1}{2x+5}-\frac{3}{4x+5}$.
(3 marks)

化簡 $\frac{1}{2x+5}-\frac{3}{4x+5}$。

3. Let $m$ and $n$ be two numbers. The sum of $4m$ and $3n$ is $615$ while the ratio of $m$ to $n$ is $5:7$. Find $n$.
(3 marks)

設 $m$ 和 $n$ 為兩個數。$4m$ 與 $3n$ 的和為 $615$，及 $m$ 與 $n$ 之比為 $5:7$。求 $n$。

4. The coordinates of the point $A$ are $(6,-3)$. $A$ is rotated clockwise about the origin $O$ through $90°$ to $B$.
   a) Write down the coordinates of $B$.
   b) Suppose that $B$ is translated to the left by $t$ units to the points $C$ such that $A$, $O$, $C$ are collinear, find $t$.
(3 marks)

點 $A$ 的坐標為 $(6,-3)$。$A$ 沿原點 $O$ 順時針旋轉 $90°$ 至 $B$。
   a) 寫出 $B$ 的坐標。
   b) 設 $B$ 向左平移 $t$ 個單位至點 $C$，且 $A$、$O$、$C$ 共線，求 $t$。

5. Factorize
   a) $5ab+10ac$
   b) $b^2-4c^2$
   c) $b^2-4c^2-5ab-10ac$
(4 marks)

因式分解
   a) $5ab+10ac$
   b) $b^2-4c^2$
   c) $b^2-4c^2-5ab-10ac$

6. Consider the compound inequality

$$\frac{5x+2}{3} < x - 4 \text{ or } 4x \le -16 \ \ldots(*).$$

a) Solve (*).

b) Write down the greatest integer satisfying (*).

(4 marks)

考慮複合不等式

$$\frac{5x+2}{3} < x - 4 \text{ 或 } 4x \le -16 \ \ldots(*).$$

a) 解 (*)。

b) 寫出滿足 (*) 的最大整數。

7. The selling price of a watch is $\$240$. The watch is sold at a discount of $40\%$ on its marked price. The marked price of the watch is $25\%$ above its cost.

a) Find the marked price of the watch.

b) Find the cost of the watch.

c) Determine whether there is a gain or a loss after selling the watch. Explain your answer.

(5 marks)

一隻手錶的售價為 $\$240$。這款手錶以標價的 $40\%$ 折扣出售。它的標價比其成本價高出 $25\%$。

a) 求這隻手錶的標價。

b) 求這隻手錶的成本。

c) 計算出售這隻手錶後是獲利還是虧損。解釋你的答案。

8. In the figure, $S$ is a point lying on $PR$. $QR$ and $ST$ interest at $U$. $\Delta PQR$ and $\Delta RST$ are two right-angled triangles with $\angle QPR = \angle SRT = 90°$. It is given that $PQ = RS$ and $QR = ST$.

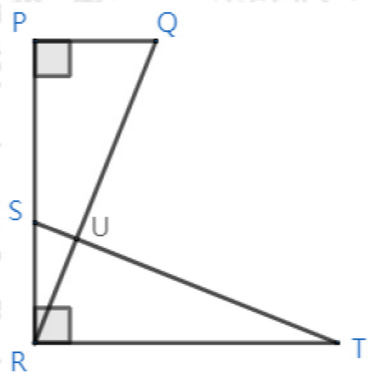
a) Prove that $\Delta PQR \cong \Delta RST$ with reason.

b) Prove that $QR \perp ST$.

圖中，$S$ 為 $PR$ 上的點。$QR$ 和 $ST$ 位於 $U$ 點。$\Delta PQR$ 和 $\Delta RST$ 是兩個直角三角形，$\angle QPR = \angle SRT = 90°$。已知 $PQ = RS$ 和 $QR = ST$。

a) 證明 $\Delta PQR \cong \Delta RST$，並給出理由。

b) 證明 $QR \perp ST$。




(5 marks)

9. The table below shows the distribution of the number of books read by some students in a month.

下表顯示了部分學生一個月內閱讀書籍數量的分佈。

| Number of books 書籍數量 | 2 | 3 | 4 | 5 | 6 |
| --- | --- | --- | --- | --- | --- |
| Number of students 學生人數 | 8 | 10 | 4 | $t$ | 7 |

The median of the distribution is 4.

a) Find the least possible value of $t$.

b) Write down the greatest possible value of $t$.

c) Find the greatest possible standard deviation of the distribution.

(5 marks)

此分佈的中位數為 4。

a) 求 $t$ 的最小可能值。

b) 寫出 $t$ 的最大可能值。

c) 求該分佈的最大可能標準差。

**Answers**

1. $\frac{x^4}{y^8}$
2. $\frac{-2x-10}{(2x+5)(4x+5)}$
3. $105$
4. a) $(-3,-6)$
   b) $15$
5. a) $5a(b+2c)$
   b) $(b+2c)(b-2c)$
   c) $(b+2c)(b-2c-5a)$
6. a) $x \leq -4$
   b) $-4$
7. a) $\$400$
   b) $\$320$
   c) Loss of $\$80$
8. a) R.H.S.
9. a) $7$
   b) $15$
   c) When $t = 15$, the standard deviation is $1.39$.