SHATIN TSUNG TSIN SECONDARY SCHOOL  
2005 – 2006 FIRST EXAMINATION  
S.1 MATHEMATICS  
ANSWER SHEET  

S.1  
Full mark: 100  
Date: 19. 12. 2005  
Time allowed: 75 min.  

Marks: ___________________________/100

Section A:  
Give the answers only. Working steps are not required in this section.

1. \(2^2 \times 3^3 \times 5\)  
2. Fifty-six thousand seven hundred and forty-nine  
3. \(\frac{4}{9}\)  
4. -1  
5. -10  
6. \(\frac{63}{16} \div \frac{3}{10}\)  
7. 44

Section B: Short Questions (25 marks)

8. 950  
9. 260

Section C: Long Questions (60 marks)

Show your working steps clearly and write the answer in words.

1. (a) \((-8 - 10 + 18) \degree C\)  
\(= 0 \degree C\)

The temp. in City B was 0 \degree C

(b) The temp. in City A: \((0 + 3) \degree C = 3 \degree C\)  
\(3 - (-8) = 11\)

.: The temp. in City A was 11 \degree C higher than that of City B

2. (a) \(-0.5 \div 2\)  
\(= -0.25 \text{ cm}\)  
(1 mark)

(b) \((100 - 0.25) \text{ cm}\)  
\(= 99.75 \text{ cm}\)

.: The water level at 10:30 am is 99.75 cm

(c) The water level decreases by 3 cm

\(3 \text{ cm} \div 0.25 \text{ cm}\)

\(= 12\)

.: The water level will be 0.97 m at 9:30 am
3. (a) \[ A = x^2 - 4^2 \]
\[ = x^2 - 16 \]
(b) (i) \[ A = 12^2 - 16 \]
\[ = 128 \]
(ii) \[ x^2 - 16 = 6.5 \]
\[ x^2 = 6.5 + 16 \]
\[ = 22.5 \]
\[ x = \sqrt{2.5} \]

4. (a) The first term is 5. The next term is \(2^n \cdot 5 \cdot 2^{n-1} \).
(b) \[ 5 \cdot 2^n \]

(c) Geometric
(d) \[ 5 \cdot 2^6 \]
\[ = 5 \cdot 64 \]
\[ = 320 \]
The 7th term is 320.

5. Solve the equation \[ 3\left(\frac{3y - 4}{5}\right) = y + 12 \]
\[ 3\left(\frac{3y}{5} - \frac{4}{5}\right) = y + 12 \]
\[ \frac{3y}{5} - \frac{4}{5} = \frac{y}{3} + \frac{12}{3} \]
\[ \frac{3y}{5} - \frac{y}{3} = \frac{12}{3} + 4 \]
\[ \frac{9y}{15} - \frac{5y}{15} = 4 + 4 \]
\[ \frac{4y}{15} = 8 \times 15 \]
\[ y = 30 \]
6. Let $x$ be the amount that Peter has. Then his brother has $\frac{2}{5}(x-300)

\begin{align*}
x - 450 &= \frac{2}{5}(x - 300 + 450) \\
x - 450 &= \frac{2}{5}(x + 150) \\
5(x - 450) &= 2(x + 150) \\
5x - 2250 &= 2x + 300 \\
3x &= 2550
\end{align*}

\[ x = \frac{2550}{3} = 850 \]

Peter has $850. His brother has $550. They have altogether $1400.

7. (a) The cost price: \( \frac{8000}{5} = 1600 \).

The profit per cent: \[ \frac{1800 - 1600}{1600} \times 100\% = 12.5\% \]

(b) The loss per cent: \[ \frac{1600 - 1200}{1600} \times 100\% = 25\% \]

(c) \[ 1800 \times 40 + 1200 \times 10 = 84000 \]

He made a profit. 

The overall profit per cent: \[ \frac{84000 - 80000}{80000} \times 100\% = 5\% \]

- End of Paper -