Name:_____

Teachers Name:_____

SYDNEY TECHNICAL HIGH SCHOOL

YEAR 7 MATHEMATICS

2012

PART A

- 70 minutes
- **NO** calculators!
- Show all necessary working out in the spaces provided
- Write in blue or black pen only

Q1 Number Theory	Q2 Number System	Q3 Fractions	Q4 Decimals	Q5 Problem Solving	**Total**
/15	/15	/15	/20	/10	/75

Question 1 Number Theory 15 marks

a) Evaluate:

i. 7^3

ii. $\sqrt{196}$

iii. $5^2 - \sqrt{36}$

(3)

b) List the prime numbers between 30 and 50.

(2)

c) List the first 3 multiples of 9

(1)

d) Find the prime factors of 126 by drawing a factor tree or using some other method.

(2)

e) Circle the numbers in the following list that are multiples of 6.

14, 36, 86, 120, 42, 318, 60

(1)

f) List all of the factors of 48 -

(1)

g) In Year 11 there are 254 students. For an activity they need to be put into groups. Could they form groups of:

i. 2 students?
ii. 3 students?
iii. 4 students?

(1)

h) My age is a multiple of 4. It also has factors of 3, 6, 9 and 12. What is the youngest I could be?

(2)

i) Write down the missing number in each pattern:

i. 22, 31, _____, 49, 58

ii. 1, 3, _____, 10, 15, 21

(2)

Question 2 Number System 15 marks

a) $3471 + 489 =$

(1)

b) Write 114 in Roman numerals

(1)

c) In a training session Mikael ran 1500 m, 250 m, 624 m and 150 m. The total distance that he ran was:

(1)

d) $(11+3)\times 2+22\div 2=$

(1)

e) $6\overline{)34628} =$

(1)

f) In a basketball game the players below scored the following points.

Karl	12 points
Jake	31 points
Ras	18 points
Bruce	6 points
Rob	17 points

Find the total points scored for the game.

(1)

g) $54\,738 \times 14 =$

(1)

h) $18\,734 - 5349 =$

(1)

i) Evaluate

i. $81\times 19+19\times 19=$

ii. $14\,782 \div 10 =$

(2)

j) Indicate true or false

i. $426 < 40 \times 11$
ii. $4 \times 3 = 3 \times 4$
iii. $99 = 297 \div 3$

(3)

k) Write in Hindu Arabic numerals

i. $3 \times 10\,000 + 7 \times 100 + 4 \times 10$

ii. XCIX

(2)

Question 3 Fractions 15 marks

a) Write $6\frac{5}{6}$ as an improper fraction

(1)

b) $\frac{38}{30}$ written in simplest form is:

(1)

c) $\frac{4}{5}+\frac{1}{3}=$

(1)

d) $\frac{5}{7}$ of $28=$

(1)

e) $\frac{13}{20}-\frac{1}{4}=$

(1)

f) $\frac{3}{4}\div\frac{7}{12}=$

(1)

g) $\left(2\frac{1}{2}+4\frac{1}{4}\right)\div\frac{3}{4}=$

(2)

h) $\frac{2}{5}\times\frac{1}{8}=$

(1)

i) At the Year 7 cake stall there were many cakes for sale. If each cake was cut into 12 slices, and $9\frac{1}{4}$ cakes were sold, how many pieces were sold?

(2)

j) There is a new chocolate bar on the market which is made up of 100 small squares. One of these bars was left in the Dawson family fridge and the following amounts were eaten.

Mum $\frac{1}{10}$

Dad $\frac{2}{5}$

Eileen $\frac{3}{20}$

Susan The rest of the bar

How many small pieces of chocolate did Susan get to eat?

(2)

k) Place the following fractions into ascending (increasing) order.

$6\frac{1}{7}$, $4\frac{2}{7}$, $3\frac{3}{7}$, $\frac{11}{4}$ $\frac{1}{3}$

(1)

l) Circle the equivalent fraction to $\frac{2}{3}$ below:

$\frac{4}{6}$ $\frac{7}{8}$ $\frac{10}{15}$ $\frac{12}{16}$

(1)

Question 4 Decimals 20 marks

a) Write TRUE or FALSE for each of the following:

i. 0.7 means 7 out of 10 equal parts

ii. 12.659 has two decimal places

iii. $0.27 = \frac{27}{100}$

iv. 1.75 is a recurring decimal

v. 2.787878... is a terminating decimal

(5)

b) Write as decimals:

i. $\frac{87}{10} =$

ii. $\frac{5}{12} =$

(2)

c) Arrange in ascending order (smallest to largest):

0.819 , 8.02 , 0.84 0.08 8.002

(1)

d) Write as a fraction:

i. 2.769 =

ii. 0.0053

(2)

e) Round off to the nearest tenth:
452.731

(1)

f) Round off this number to two decimal places:

6.597865

(1)

g) 3.637 + 7.214 is equal to:

(1)

h) 409.167 ÷ 1000 is equal to:

(1)

i) Lucy bought 14 pieces of ribbon which were each 2.12 m long.

i. Find the total length of ribbon that Lucy bought.

ii. If each metre of ribbon costs $5.20, find the total cost.

(3)

j) The number of decimal places in the answer for 5.078 × 3.62 would be:

(1)

k) Write each of the following recurring decimals in abbreviated form

i. 5.333333... ii. 11.38777777...

(2)

Question 5 Problem Solving 10marks

a) Minh was asked to buy enough ice creams for everyone in his class. There are 31 people in the class. At the supermarket, identical ice creams come in packets of 3 or packets of 5. Minh is told that the cost of one ice cream is the same from either packet. What packets or combination of packets should Minh buy?

2

b) A farmer divides his herd of cows among his four sons so that one son gets ½ the herd, a second son, ¼ ; a third son, 1/5; and the fourth son, 7 cows. How many cows are in the herd?

2

c) The cost of a cup with a saucer is $4.80. If the cup is three times the cost of the saucer, how much is the cup worth on its own?

2

d) Using the fact that $(x + y)\,(x - y) = x^2 - y^2$, find a rule for multiplying 47 by 53

2

e) Find the average of $\frac{1}{2}$ *and* $o.\dot{6}$ as a fraction

2