Name : _____

Teacher : _____ **Class :** _____

Grade 8 Mental Maths Examination May 2015

Marks :75

Time : 1 Hour

1. Write the following as a product of prime factors:

a) 54 (3)

2. Use prime factors to determine the square root of the following:

a) √324 (3)

3. Calculate each of the following. Show all necessary working.

a) -4 + 3(-10) (2)

_____

b) -7(-8)(-1) (1)

_____

c) 30 – (-10) + 4 (2)

_____

d) 81 ÷ (-9) + 10 – 2 (3)

_____

e) $-2^2 + (-2)^3$ (3)

_____

f) $-3^2 + (-4)^2$ (3)

_____

g) $\sqrt{25} - 16\ \sqrt[3]{-27}$ (4)

_____

4. Determine which of the two temperatures is higher: (3)

a) 4^oC or -4^oC _____

b) -1^oC or 20^oC_____

c) -3^oC or -4^oC_____

5. The temperature in Helsinki one morning at 08:00 is -8^oC and increases by 2^oC per hour until midday.

a) What will the temperature be at 12:00? (2)

_____

_____

b) If the temperature decreases after midday (12:00) by 3^oC per hour, what will the temperature be at 19:00? (2)

_____

_____

6. Complete the number patterns: (4)

a) 10 ; 8 ; 6 ; _____; _____; _____

b) 9 ; 18 ; 27 ; _____; _____; _____

c) 1 ; 7 ; 13 ; _____; _____; _____

d) -12 ; -7 ; -2 ; 3 ; _____; _____; _____

7. Express each of the following in scientific notation:

Country	Population	Scientific Notation
China	1 302 000 000	
USA	294 000 000	

(4)

8. Simplify each of the following: (9)

a) 3 x a _____

b) -1 x b_____

c) -2 x 3a x -5b _____

d) q x p x (2 + 5) _____

e) 2a x 3b x 4c _____

f) –a x –bm _____

g) a x b x 2 x 0 _____

9. Given $9x^2 + 7x + 3 + y^2 + 13y$

Complete the sentences using the list:

9 ; y^2 ; $7x$; variable ; constant ; term

a) x is a _____ (1)

b) 3 is the _____ (1)

c) _____ is the coefficient of x^2 (1)

d) 1 is the coefficient of _____ (1)

10. How many terms are there in each of the algebraic expressions? (3)

a) $5x + 4y – 3z$ _____

b) 2 x a x b x c _____

c) $\frac{a+b}{5} + \frac{2a}{3}$ _____

11. Write 8,3475 correct to : (2)

a) One decimal places _____

b) Two decimal places _____

12. Compare the fractions and use the signs = ; □ or □ to indicate their relationships. (2)

a) $\frac{1}{3}$ and $\frac{5}{15}$ _____

b) $\frac{3}{8}$ and $\frac{2}{6}$ _____

13. Calculate each of the following. Show all your working. Use the space in the blocks below to do your working.

a) $\frac{7}{9} + \frac{4}{11}$ (1)

b) $\frac{7}{8} - \frac{5}{12}$ (2)

c) $3\frac{1}{3} - 2\frac{3}{4}$ (4)

d) $\frac{2}{5} \times \frac{3}{7}$ (1)

e) $1\frac{3}{7} \times 2\frac{1}{10}$ (3)

f) $\frac{14}{5} \div \frac{7}{15}$ (2)

g) $\frac{8}{\frac{1}{4}}$ (3)

a)	b)	c)	d)
e)	f)	g)	