Standard Level Assessment Name ……

Presumed Knowledge for SL Time Allowed Tuesday 7th September

ALL

SECTIONS ARE TO BE COMPLETED WITHOUT A CALCUALTOR

1. Simplify each of the following:

a. $3\sqrt{2} + \sqrt{2}$ b. $\sqrt{324}$ c. $\sqrt{12} - \sqrt{108}$

[3]

2. Write each of the following as a rational number.

a. $\frac{\sqrt{8}}{\sqrt{18}}$ b. $(2\sqrt{2})^2$ c. $\frac{\sqrt{12}}{\sqrt{3}}$

[3]

3. Express the following in standard form:

a. 268 836 000 b. 0.000567

[1]

4. Write 4.456×10^{-6} as an ordinary number.

[1]

5. Change 7.2 km/h into m/s. Leave your answer in standard form.

[1]

6. From the set of numbers $\xi = \{-1, 5, 8, 100, 2, \sqrt{3}, \frac{4}{9}, 0, 0.\dot{3}\}$ complete the sets below:

N = { }

Z = { }

Q = { }

[3]

7. Sketch the number set $\{x : x \in R, -5 < x \leq 4\}$.

[1]

8. Expand and simplify.

a.$(2x+3)(2-x)$ b. $(3t^2)^2 \times 4t$

c. $5 - (x+3)^2$ d. $(2x+1)^2 - (x-2)^2$

[4]

9. Solve the inequality $1-3x \geq 19$.

[1]

10. Write down the value of $|-6| - |-4|$ [1]

11. Solve each of the following for x:

a. $|x-3| = -2$ b. $|3-x| = 4$

[2]

12. Factorise each of the following:

a. $4x^2 - 24x$ b. $1 - 9x^2$ c. $2x^2 + 6x - 10$

d. $3 + 5x - 2x^2$ e. $12x^2 + 17x - 14$ f. $3(x+2)+2(x-1)(x+2) - (x+2)^2$

[6]

13. Make *p* the subject of each of the following:

a. $v = \frac{3}{5}t^2 p$

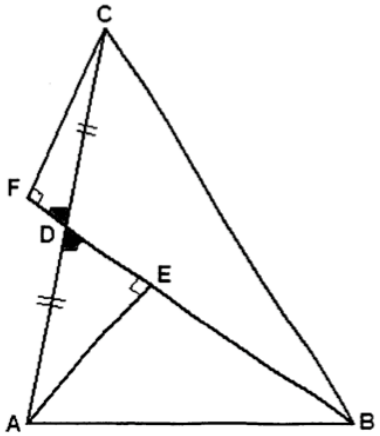
b. $\frac{1}{(p^2 - 2)} = y$

[2]

14. Express $\frac{x}{2+x} + \frac{2-x}{1-3x}$ the following as a single fraction.

[1]

15. In the diagram below, D is the midpoint of AC, AE and CF are both perpendicular to BF. By showing that triangles AED and CFD are congruent, show that AE = CF.



[1]

END OF TEST