

MERRYLAND HIGH SCHOOL - ENTEBBE
HOLIDAYTERM 1 2020BREAK
MATHEATICS

S.3

INSTRUCTION:

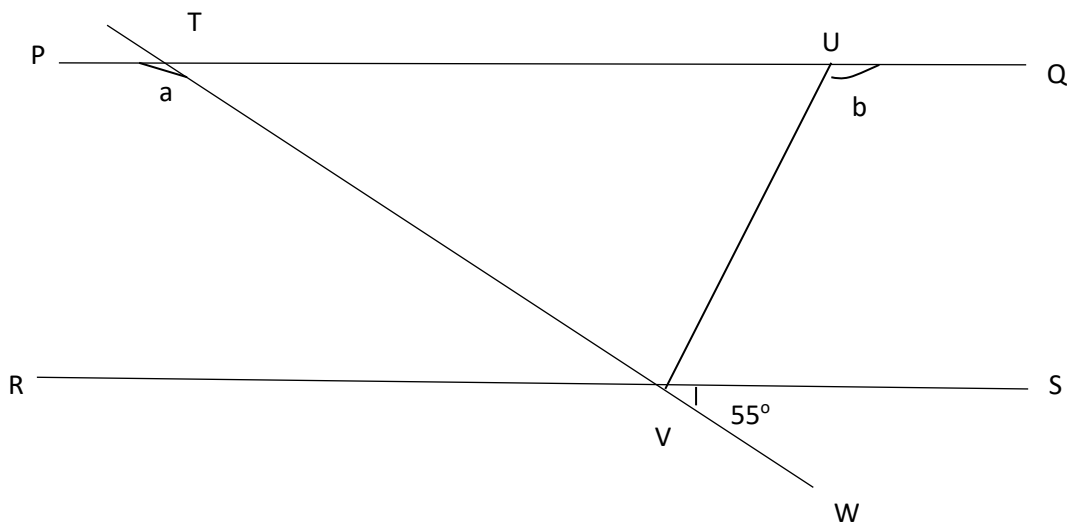
Answer ALL questions.

1. Without using a table, or calculator, evaluate $\frac{30.25^2 - 30.15 \times 30.25}{0.0025}$
(4marks)
2. Given that $x^2 - y^2 = 135$ and $x - y = 9$, find the values of x and y . (4marks)
3. Given that sets;
 $A = \{ \text{All natural numbers less than } 30 \}$
 $B = \{ \text{All prime numbers between } 10 \text{ and } 30 \}$
Find
(i) $n(A \cap B)$
(ii) $n(A \cup B)$
4. Solve the simultaneous equations
 $4y - 3x = 2$
 $2y + 1 = 2x$
5. A straight line passes through the origin and the point $P(1, -1)$. Find the equation of the line. (4marks)
6. Given the points $L(3, 4)$ and $M(7, 7)$. Find the;
(i) Vector \vec{LM}
(iii) Length of LM (4marks)

7. Factorize completely;

$Y(ay - x) + x(y - ax)$ (4 marks)

8. In the figure below, PQ is parallel to RS. Angle SVW = 55°, UV is perpendicular to TW. Determine the values of the angles labelled a and b. (4 marks)



9. a) Express $1.\dot{2}\dot{4}$ as a fraction in its simplest form (4 marks)

b) If $S = \sqrt{kd(l-d)}$, express l in terms s, k and d . (4 marks)

c) Express $\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ in the form $p+q\sqrt{r}$, where p, q and r are constants. (4 marks)

10. The data below represents the time in seconds of an oscillation of a given pendulum as recorded by different students

10.3	9.7	10.2	9.8	10.1
9.9	10.1	9.9	10.0	10.2
10.3	10.0	10.2	10.1	9.8
9.9	10.1	10.0	10.1	9.9
10.1	10.1	10.1	10.1	9.9
9.8	9.8	10.0	9.9	10.2

a) The frequency table below was drawn out to represent the data above. Copy and complete the table. (6marks)

Time (s) (x)	Tally	Frequency (f)	Cumulative frequent(cf)	xf
9.7	/	1	1	9.7
9.8	////	4	5	39.2
9.9	-	-	-	-
10.0	-	-	-	-
10.1	-	-	-	-
10.2	-	-	-	-
10.3	-	-	-	-
		$\Sigma f = \dots\dots\dots$		$\Sigma xf = \dots\dots\dots$

- (i) Use the table to
- (ii) State the modal time of oscillation (1 mark)
- (iii) Calculate the mean and medium times of oscillation. (5 marks)

END