

S.2 ENTRY MATHEMATICS HOLIDAY WORK

1. An article is sold at **3000** shillings and a seller makes a profit of **25%**. How many articles must the seller sell in order to make a profit of **Shs.10,800**?
2. Given that: $P = \{\text{Prime numbers between } 8 \text{ and } 20\}$
 $Q = \{\text{Square numbers between } 3 \text{ and } 30\}$
Find: (i) $P \cap Q$ (ii) $n(P \cap Q)$
3. Express 0.6555..... as a fraction in its lowest term.
4. Solve the equation; $\frac{3x-1}{2} - \frac{2x-1}{3} = \frac{5-x}{4}$.
5. Mikisa borrowed Shs. 2.5 million for two years at a simple interest and paid back shs. 3.7 Million. What is the interest rate for the loan?
6. Simplify: $\frac{1\frac{1}{2} - \left(8\frac{1}{3} \div 2\frac{1}{4}\right)}{1\frac{1}{5} \text{ of } \left(1\frac{1}{4} + 1\frac{3}{3}\right)}$
7. Express 576 as a product of prime factors, hence find the cube root of 576
8. If $h = \frac{n^2 - 6n + 8}{n^2 - 5n + 6}$ find the value of h for which;
(i) $n=0$ (ii) $n = 2$ (iii) $n = -3$ (iv) $n = 9$
9. The mean of three consecutive numbers is 3. Find the value of the largest number
10. An isosceles triangle has a base of $2y$ cm, height of $(y-1)$ cm and an area of $(y^2 - 8)$ cm. Find the;
i) length of the sides. ii) Perimeter.
11. (a) Joan bought a T.V from the USA costing **1720\$**. How much would it cost her in Uganda if the exchange rate is **1\$ = 3500 Shs**
(b) A trader bought a bull at 800,000/= and he sold it at 1,050,000/=. What was his percentage profit
12. A plane flew **540km** from airport A to airport B on a bearing of **050°**. From B it travels **465km** to airport C on a bearing of **150°**. From C it heads for airport D, **360km** away on a bearing of **285°**.
(i) Draw, to scale, a diagram showing the route of the plane. **(Use a scale 1cm to represents 50km)**
(ii) From your diagram determine the distance and bearing of airport A from airport D

13. Points A (2, 2), B (3, 4), C (5, 4) and D (6, 2) are points of the corners of a particular figure. Plot A, B, C and D on a graph paper.
- Name the shape
 - Calculate its area
14. a) Using a pair of compasses and ruler only, construct a triangle PQR, where $PQ = 8$ cm, angle $PQR = 105^\circ$ and $PR = 12$ cm.
- Measure angle P and R and side QR.
 - Drop down a perpendicular from R onto PQ produced. Label the point W and measure the distance RW and QW.
 - Calculate the area of PQR
15. The distance from Kampala to Kabale is 400km. James left Kampala at 0830 hours for Kabale driving at 60kmh^{-1} but his vehicle got a mechanical problem after 2hours which took 30 minutes to repair. He then continued with his journey driving steadily and arrived in Kabale at 1615hrs.
- Draw a graph showing the route of James. (Use 2cm to represent 50km and 2cm to represent 1 hr).
 - At what time did James's vehicle get a mechanical problem
 - Calculate the speed with which James reached Kabale

HAVE A PLEASANT HOLIDAY