

STUDY GUIDE

Answer all Questions

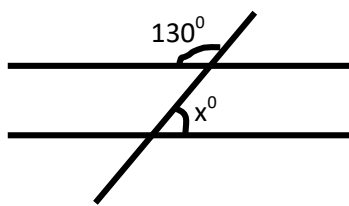
N/B: The use of calculator and phones are not allowed in the examination hall.

TIME: 45 minutes

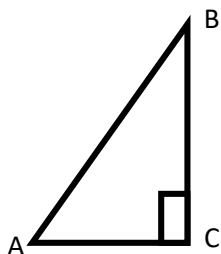
YEAR 10

1. Find one – ninth of the difference between 49 and 13 (a) 8 (b) 10 (c) 4
2. The product of a certain number and five is equal to twice the number subtracted from twenty. Find the number? (a) $3\frac{5}{7}$ (b) $2\frac{6}{7}$ (c) $2\frac{1}{7}$ (d) $2\frac{2}{7}$
3. Find the square root of 100100_{two} in base 10 (a) 6_{10} (b) 4_{10} (c) 8_{10} (d) 10_{10}
4. If b varies inversely as h and $b = 8$, when $h = 5$, find b when $h = 4$ (a) 8 (b) 10 (c) 12 (d) 5
5. Find the HCF of $10ax^2$ and $14a^2x$ (a) $2ax$ (b) $4ax$ (c) $8ax$ (d) $2a^2x$
6. Four times a certain number is equal to the number subtracted from 40. Find the number (a) 4 (b) 10 (c) 12 (d) 8
7. Factorize the following expression $\pi r^2 + \pi rs$ (a) $\pi r (r^2 + s)$ (b) $\pi r (r + s)$ (c) $\pi (\pi r + s)$ (d) $\pi^2 (r + s)$
8. Express 3.06×10^4 in ordinary form (a) 30006000 (b) 306000 (c) 30600 (d) 3000600
9. Simplify $(6 \times 10^9) \times (8 \times 10^2)$ (a) 48×10^{-2} (b) 4.8×10^{12} (c) 7.5×10^{-5} (d) 7.5×10^2
10. Divide 6×10^3 by 8×10^{-2} (a) 7.5×10^4 (b) 7.5×10^{-4} (c) 7.5×10^{-5} (d) 7.5×10^2
11. If x is inversely proportional to \sqrt{y} and $x = 9$ when $y = 16$. Find y when $x = 25$ (a) 2.24 (b) 3.06 (c) 2.07 (d) 4.22
12. One factor of $x^2 - 2x - 8$ is $x + 2$. Find the other factor (a) $x + 4$ (b) $x - 2$ (c) $x - 4$ (d) $x + 1$
13. A farmer shared 240 cattle's among his three children in the ratio 5:4:3. How many cattle did each child get? (a) 60, 30, 40 (b) 100, 80, 60 (c) 70, 80, 40 (d) 20, 60, 80
14. Convert 11101_{two} to base 10 (a) 30_{10} (b) 29_{10} (c) 28_{10} (d) 27_{10}

15. A gas at a temperature $\theta^{\circ}\text{C}$ has an absolute temperature of $T^{\circ}\text{K}$, where $T = \theta + 273$. Find the absolute temperature of a gas at a temperature of 36°C (a) 300k (b) 308k (c) 309k (d) 400k
16. A car starts a journey with a full petrol tank. The amount of petrol in liters left in the tank after travelling for t hours is given by the formula $P = 63 - 10t$. Find the amount of petrol left after travelling for $2\frac{1}{2}$ hours (a) 40 liters (b) 60 liters (c) 30 liters (d) 38 liters
17. Given that $y = 2x - 9$. Express x in terms of y , when $y = 5$ (a) 14 (b) 10 (c) 7 (d) 8
18. How long will it take a principal of ₦25, 000 to earn an Interest of ₦2, 625 at 3% per annum? (a) $4\frac{1}{2}$ years (b) $3\frac{1}{2}$ years (c) $5\frac{1}{2}$ years (d) 2 years
19. What is the size of the angle marked X° in the diagram below (a) $130^{\circ} - x^{\circ}$ (b) 130° (c) 65° (d) 25°



20. If $\cos \theta = \frac{4}{5}$ in a right angled triangle. Find $\tan \theta$ (a) $\frac{4}{3}$ (b) $\frac{5}{4}$ (c) $\frac{4}{5}$ (d) $\frac{3}{4}$
21. Factorize $8uv - 2v^2 + 12uw - 3vw$ (a) $(3u - v)(v + 3w)$ (b) $(v - u)(v - 3u)$ (c) $(4u - v)(2v + 3w)$ (d) $(2v - u)(4v - u)$
22. From diagram below, what side of the triangle is the opposite? (a) BC (b) CA (c) AB (d) BA



23. The sum of three consecutive even numbers is 72. The highest of the three numbers is (a) 12 (b) 26 (c) 22 (d) 24
24. Solve $82.5 \div 0.025$ and express your answer in standard form (a) 3.3×10^{-3} (b) 3.3×10^{-2} (c) 3.3×10^1 (d) 3.3×10^3
25. Solve for x in the equation $\frac{x-4}{5} = 2 - \frac{x}{2}$ (a) 5 (b) 4 (c) 16 (d) 8