



Mathematics Exam

TJ 3C

Scientific Notation & Integer Work



SHOW ALL WORKING!

1. Write the following numbers in **scientific notation**:-
 - a) 200000
 - b) 8620000
 - c) $8\frac{1}{2}$ million
 - d) 0.0000007

2. Write each of the following in **normal** number form:-
 - a) 5.9×10^4
 - b) 9×10^8
 - c) 4.02×10^{-5}

3. Calculate the following, **giving your answers in scientific notation**:-
 - a) $(8.6 \times 10^{13}) \times (4 \times 10^{-8})$
 - b) $(1.8 \times 10^{-9}) \div (9 \times 10^{-7})$

4. Give both your answers to question 4 as **normal** numbers.
 - a) Light travels at 1.08×10^9 kilometres per hour.
How far will it travel in 1 minute?
 - b) The volume of a blood cell is 2×10^{-10} .
What is the volume of 3 million blood cells?

5. Simplify:-
 - a) $6 + (-10)$
 - b) $-8 - 1$
 - c) $-3 - (-6)$
 - d) $-10 + 15$
 - e) $3 \times (-7)$
 - f) $-10 \times (-4)$
 - g) $-40 \div 8$
 - h) $(-5)^2$

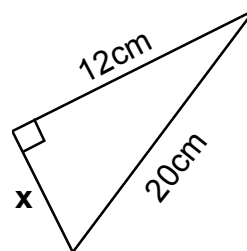
6. Simplify these algebraic expressions:-
 - a) $4x - 6x$
 - b) $-2y + (-6y)$
 - c) $2x - (-3x) + (-4x)$
 - d) $-7y \times 3$
 - e) $-6x \times (-5x)$
 - f) $(-8x)^2$

7. If $a = 5, b = -1, c = -6$, calculate the values of:-
 - a) $a + b$
 - b) $2a - 3c$
 - c) bc
 - d) c^2
 - e) $4b^2$
 - f) $3ac$
 - g) $(a + b)(a - b)$
 - h) $a^2 + b^2 + c^2$

Recall of previous topics

8. Gill saves £4000 in a savings account which gives 5% compound interest per annum.
How much interest will she have received after 3 years?

9. Find the value of x in the diagram opposite.



10. There are 31,536,000 seconds in a year. Round this number to two significant figures.