

F Michaelmas Trial Practice 1

- Calculate 239×7.2 . 1720.8
- Calculate $\frac{1}{2} + \frac{2}{5} \times 2\frac{1}{4}$. $\frac{7}{5}$
- $$P = 2^{10} \times 3^2 \times 7^3$$

$$Q = 2^8 \times 3^6 \times 5^2$$
 - Write (as a product of primes) the HCF of P and Q . HCF = $2^8 \times 3^2$
 - Write (as a product of primes) the LCM of P and Q . LCM = $2^{10} \times 3^6 \times 5^2 \times 7^3$
- Expand and simplify $(2x - 3)^3$. $8x^3 - 36x^2 + 54x - 27$
- Solve the following for x .
 - $\frac{4}{2x - 3} = 8$. $x = \frac{7}{4}$
 - $a(x - b) = b(x + c)$. $x = \frac{ab+bc}{a-b}$
 - $(x - 3)(x + 4) = (x - 1)(x + 10)$. $x = -\frac{1}{4}$
 - $3 \times \frac{1}{9^{x-2}} = \frac{27^x}{3^{2-x}}$. $x = \frac{7}{6}$
 - $\frac{x-3}{2} - \frac{4-3x}{4} = 3x - \frac{x-1}{2}$. $x = -\frac{12}{5}$
- In a building 50 people were asked as to whether they enjoyed rugby and/or football. 27 liked rugby. 25 liked football. 5 liked neither. How many liked rugby but not football? 20
- Solve the following simultaneous equations for x and y .
 - $$\begin{aligned} 2x + 3y &= 10 \\ 4x - 2y &= -4 \end{aligned}$$
 $(x, y) = (\frac{1}{2}, 3)$
 - $$\begin{aligned} 0.4x + 0.8y &= 1 \\ 0.2x + 0.6y &= 2 \end{aligned}$$
 $(x, y) = (-\frac{25}{2}, \frac{15}{2})$
 - $$\begin{aligned} x + ay &= 1 \\ 2x + 3y &= -1 \end{aligned}$$
 $(x, y) = (-\frac{a+3}{2a-3}, \frac{3}{2a-3})$
- A Venn diagram has three sets A , B and C . $A \cap B = \emptyset$. $C \subset A$. Draw the Venn diagram. A and B not overlapping. C entirely within A
- Prove the result that the angle subtended in a semi circle is 90° .
- Draw a Venn diagram with three overlapping sets A , B and C , which overlap in the normal way. Shade the region $A' \cap (B \cup C)'$. Everything outside the three circles
- What is the smallest integer that 288 must be multiplied by to make it a perfect cube? 6
- If Adriana can paint the fence in 7 minutes and Cindy can paint the same fence in 2 minutes, how long will it take them working together? $\frac{14}{9}$ minutes
- If x Etonians can annoy y beaks in z days, how long will it take a Etonians to annoy b beaks? $\frac{bxz}{ay}$ days