Must Know Questions To Ace
HCF & LCM

1.	a) Find the prime factorisation of 126 and 567, expressing your answers in index notation. b) Hence, using your answer in (a), find the highest common factor (HCF) and lowest common multiple (LCM) of 126 and 567.
2.	Find the highest common factor (HCF) and lowest common multiple (LCM) of 36, 72 and 135.
3.	Written as a product of its prime factors, $1400 = 2^3 \times 5^2 \times 7$. a) Find the smallest positive integer k such that $1400k$ is a perfect square. b) Find the smallest positive integer k such that $\frac{1400}{k}$ is a perfect cube.
4.	Given that the HCF and LCM of 364 and M are 52 and 728 respectively, find the smallest possible value of M.
5.	Achievers Studio packs 1144 boxes of chocolates, 352 packets of apple juice and 572 brownies into as many goodie bags as possible for their students on Children's Day. The chocolates, apple juice and brownies are divided equally among all the goodie bags. a) What is the maximum number of goodie bags that can be prepared by Achievers Studio? b) How many boxes of chocolates, packets of apple juice and brownies are in each goodie bag?
6.	Three traffic lights will turn red at a fixed time intervals of 36 seconds, 1 minute and 1 minute 30 seconds respectively. If all three traffic lights first turned red together at 09 45, when will all three traffic lights turn red together again?

Answer Key:

1. a) $126 = 2 \times 3^2 \times 7$
   $567 = 3^4 \times 7$

   b) HCF = $3^2 \times 7 = 63$
   LCM = $2 \times 3^4 \times 7 = 1134$

2. HCF = $3^2 = 9$
   LCM = $2^3 \times 3^3 \times 5 = 1080$

3. a) $k = 2 \times 7 = 14$

   b) $k = 5^2 \times 7 = 175$

4. $M = 2^3 \times 13 = 104$

5. a) 44 goodie bags
   b) 26 boxes of chocolates, 8 packets of apple juice and 13 brownies

6. 09 48