SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1 國慶日 $57^{2016} \pmod{100} = ?$	**2** 二十 Find the square of the maximum value of $\sin x + \cos x$.	**3** 廿一 3 is the first Cullen prime.
4 廿二 Let $S(x) = 1 + 2x + 3x^2 + \ldots$, find $S\left(\frac{1}{2}\right)$.	**5** 廿三 5 is the smallest prime factor of 2015.	**6** 廿四 Today is the 184th birthday of Richard Dedekind.	**7** 廿五 A 7-sided regular polygon cannot be constructed by compasses and straightedge.	**8** 寒露 Zenzizenzizenzic was a term coined by earlier mathematicians to indicate the 8th power of a number.	**9** 廿七 $\frac{97524}{10836} = ?$	**10** 廿八 There are 10 types of people – those who understand binary and those who don't.
11 廿九 11 is the smallest Repunit prime.	**12** 三十 12 is the smallest abundant number.	**13** 九月 A cube has 13 axes of rotational symmetries.	**14** 初二 14 is the smallest positive integer n such that $50n^2 + 1$ is a perfect square.	**15** 初三 $3n^5 + 5n^3 + 7n$ is divisible by 15 for all integers n.	**16** 初四 It is known that a, b, c are distinct and $\overline{abc}$, $\overline{acb}$ and $\overline{cba}$ are square numbers. Find $a + b + c$.	**17** 初五 A 17-sided regular polygon can be constructed with compasses and straightedge.
18 初六 18 resembles the pronunciation of "will surely prosper" in Chinese	**19** 初七 $ABCD$ is a kite with perpendicular diagonals. If $AB = 16$, $BC = 8$ and $CD = 13$, find DA.	**20** 初八 The number of quarter or half turns to solve a Rubik's Cube in worst case is 20.	**21** 重陽節 What is the fewest number of distinct integer-sided squares needed to tile a square?	**22** 初十 22 is the smallest positive integer which can be expressed as the sum of 2 primes in 3 ways.	**23** 十一 23 is the first prime number that its unique factorisation of cyclotomic integers based on the p^{th} root of unity breaks down.	**24** 霜降 A tesseract has 24 two-dimensional faces.
25 十三 Today is the 204th birthday of Évariste Galois.	**26** 十四 Today is the 104th birthday of Chern Shiing-shen.	**27** 十五 27 is the largest number in the Platonic lambda series.	**28** 十六 28 is the second smallest perfect number, i.e. a number whose sum of divisors equals twice itself.	**29** 十七 If we write each date in the ddmmyyyy format, how many palidromic dates are there in the 21st century?	**30** 十八 The integer closest to $\pi^3 - \frac{\pi}{500}$.	**31** 十九 Today is the 200th birthday of Karl Weierstrass.

57th IMO HONG KONG 2016

第五十七屆國際數學奧林匹克

57th International Mathematical Olympiad

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