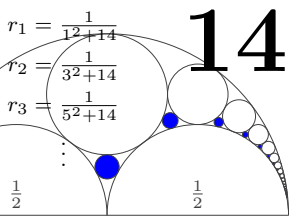
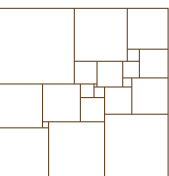
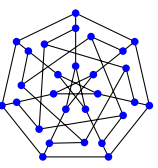


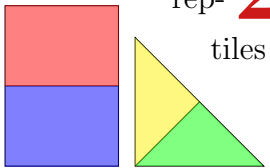
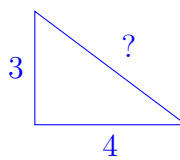

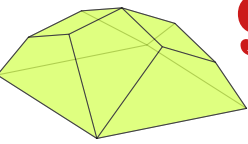

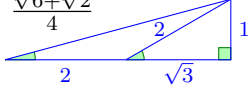
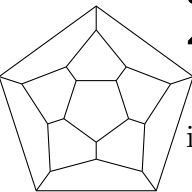



SEOUL ICM 2014

INTERNATIONAL
CONGRESS OF
MATHEMATICIANS

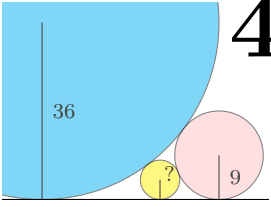

Mathematical Calendar

SUN	MON	TUE	WED	THU	FRI	SAT
29	30	31	1 • On-line Paper Submission Open	2 How many twin primes p and $p + 2$?	3 2333 is the smallest prime having only three 3s.	4 rep-4 tiles 
5 $\sec^2(\arctan 2)$	6 • On-line Registration Open	7 pandigital expression $98532 \div 14076$	8 $\lim_{x \rightarrow \infty} \frac{x-8}{ x-8 } = 1$ $\frac{1}{\infty} = 0$	9 10999999999 is the smallest prime having only nine 9s.	10 $1^1 + 2^2 + 3^3 + \dots + 9^9 + 10^{10}$ is prime.	11 $\sqrt{37 + 41 + 43}$
 Every fullerene C_n has exactly $12 \frac{5}{6}$.	13 • Proclamation of the year 2014 as the Korean Mathematical Year	14 $r_1 = \frac{1}{1^2+14}$ $r_2 = \frac{1}{3^2+14}$ $r_3 = \frac{1}{5^2+14}$ \dots $\frac{1}{2}$ $\frac{1}{2}$ 	15 $\binom{6}{2}$	16 2^{2^2}	17 • Notification of NANUM 2014 Acceptance	18 $\frac{\csc 18^\circ}{2} = \text{golden ratio}$
19 $19 \mid 181716 \dots 321$	20 $\binom{6}{3}$	21  smallest # of squares	22 $\approx \sqrt{15^2 + 16^2}$	23 $\overbrace{11111 \dots 11111}^{23}$ is the third repunit prime.	24 $24!$ \approx Avogadro's #	25 Ramsey # $R(4, 5)$
26 26: not palindromic 26 ² : palindromic	27 $1! + 2! + 4!$	28  Coxeter's graph	29 $\approx 5e(\pi - 1)$	30 $2 \times 3 \times 5$	31 $\approx \frac{e^\pi - \log 3}{\log 2} - \frac{4}{5}$	1
2	3	4				<h1>2014.1.</h1>

SUN	MON	TUE	WED	THU	FRI	SAT
26	27	28	29	30	31	1 i^4
 rep- 2 tiles	3 Period 3 implies chaos.	4 $4 \nmid 2014$ The year 2014 is not a leap year.	5 	6 $4 + (4 + 4) \div 4$	 7 heptagon-shaped 50 pence coin	8 888888883 is the smallest prime having only eight 8s.
 9 odd # of faces, each face has the same # of edges	10 	11 $\frac{1}{F_{11}} = \frac{1}{89}$ $= 0.01123595 \dots$ $= \sum_{k=0}^{\infty} \frac{F_k}{10^{k+1}}$	12 $\frac{4}{1 - \frac{2}{3}}$	13 $2 \times 3 \times \dots \times 13 + 1$ $= 59 \times 509$	14 $\approx 1 + \pi + \pi^2$	15 $\cos 15^\circ = \frac{\sqrt{6} + \sqrt{2}}{4}$ 
16 The largest order of $E_{\text{torsion}}(\mathbb{Q})$	17 $\approx \sqrt[3]{13^3 + 14^3}$	18 $\approx 4\pi + 2e$	19 $\overbrace{1922222 \dots 2222219}^{19}$ is prime.	 20 icosian game	21 $\approx 8e - \frac{2}{e}$	22 $1^4 + 2^3 + 3^2 + 4^1$
23 $1!$ $+ 2! + 2!$ $+ 3! + 3! + 3!$	24 $3^3 - 2^2 + 1^1$	25 $\approx 30e - 18\pi$	26 Every prime has one of specific 26 primes as a substring.	27 $27! + 1$ is prime.	28 • Deadline for Abstract Submission	1
2	3	4				

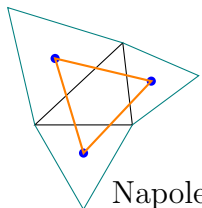
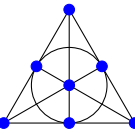


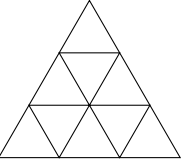
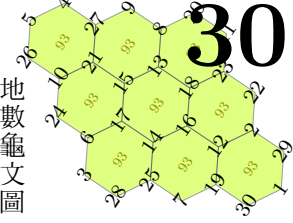

2014.2.

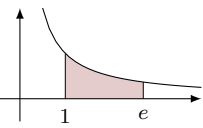

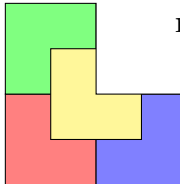
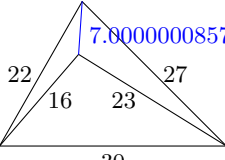
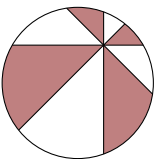
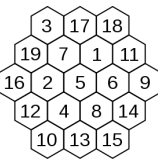
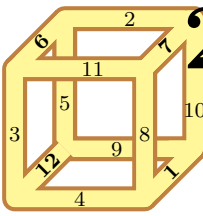
SUN	MON	TUE	WED	THU	FRI	SAT	
23	24	25	26	27	28	1 $-e^{\pi i}$	
2 The smallest prime number.	3 $\lfloor \pi \rfloor$	4 $\approx \log 55$	5 There are only 5 Platonic polyhedra.	6 the smallest perfect number	7 $M_3 = 2^3 - 1$	8 $4 + 4 + 4 - 4$	
9 $1! + 2! + 3!$	10 1010_2	11 $\sqrt{121} = \sqrt[3]{1331}$	12 $2^{\frac{1}{12}}$ 	13 TWO + eleven = TWelve + One	14 $\pi \approx 3.14$	15 $2^{15} + 15$ is prime.	
16 $\sqrt{10} \approx 3.16$	17 170000000000000071 is a 17-digit palindromic prime.	18 33_5	19 XIX	20 $\approx e^\pi - \pi$	21 $\binom{6+1}{2}$ is the 6th triangular number.	22 $3 + 19 = 5 + 17 = 11 + 11$	
23 $10^{23} - 23$ is the largest 23 digit prime.	24 divides $n(n+1)(n+2)(n+3)$	25 $\sqrt{7^2 + 24^2}$	26 $26^3 = 17576 = (1+7+5+7+6)^3$	27 29 and 29_{29} are both prime.	28 \exists 28 exotic 7-spheres	29 29 and 29_{29} are both prime.	
30 33_9	31  $2^5 - 1$	1					2014.3.

SUN	MON	TUE	WED	THU	FRI	SAT
30	31	1 $\cos^2 \theta + \sin^2 \theta$	2 $\sqrt{2}$ $\approx 1 + \frac{24}{60} + \frac{51}{60^2} + \frac{10}{60^3}$	3 $e < 3 < \pi$	4 	5 S_5 is not solvable.
6 $\frac{\pi^2}{\sum_{n=1}^{\infty} \frac{1}{n^2}}$	7 $\frac{1}{7} = 0.142857\dots$ $\frac{5}{7} = 0.7142857\dots$ $\frac{4}{7} = 0.57142857\dots$ $\frac{6}{7} = 0.857142857\dots$ $\frac{2}{7} = 0.2857142857\dots$ $\frac{3}{7} = 0.42857142857\dots$	8 $\begin{array}{r} 888 \\ 888 \\ 888 \\ + 8 \\ \hline 1000 \end{array}$	9 Nine lemma: $\begin{array}{ccccccc} & 0 & & 0 & & 0 & \\ & \downarrow & & \downarrow & & \downarrow & \\ 0 & \rightarrow & A & \rightarrow & B & \rightarrow & C & \rightarrow & 0 \\ & & \downarrow & & \downarrow & & \downarrow & & \\ 0 & \rightarrow & A' & \rightarrow & B' & \rightarrow & C' & \rightarrow & 0 \\ & & \downarrow & & \downarrow & & \downarrow & & \\ 0 & \rightarrow & A'' & \rightarrow & B'' & \rightarrow & C'' & \rightarrow & 0 \\ & & 0 & & 0 & & 0 & & \end{array}$	10 • Notification of Abstract Acceptance	11 $\pi\alpha\lambda\epsilon\rho = \text{eleven}$	12  12 pentominoes
13 $13 \mid \overbrace{1\dots 13}, \overbrace{13\dots 3}$	14  14-faced die	15 $\tan 15^\circ = 2 - \sqrt{3}$ 	16  # of trees on 4 labeled vertices	17 minimal # of hints for sudoku puzzle	18 $3 \times (3 + 3)$	19 $4! - 3! + 2! - 1!$
20 	21  $1 + 2 + 3 + 4 + 5 + 6$	22 $\approx \frac{39}{\sqrt{\pi}}$	23 $-1 + 2 \times 3 \times 4$	24 $24 + 4 \times 2 = 2^4 + 4^2$	25  $\frac{4}{25}$	26 222_3
27 $x^3 + px + q \rightsquigarrow \Delta = -4p^3 - 27q^2$	28 $28^4 = 614656 = \binom{6+1+4}{+6+5+6}^4$	29 Fibonacci number $F_{29} = 514229$ is a prime ending in 29.	30  $1^2 + 2^2 + 3^2 + 4^2$	1	2	3
4	5	6				



2014.4.

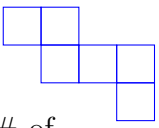
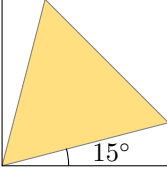

SUN	MON	TUE	WED	THU	FRI	SAT
27	28	29	30	1 $\lim_{x \rightarrow 0} \frac{e^x - 1}{x}$	2 $(S_n : A_n)$	3  Napoleon Δ
4 $a+bi+cj+dk \in \mathbb{H}$ Quaternion	5 $5 = 0^{1^2} + 0^{2^1} + 1^{0^2} + 1^{2^0} + 2^{0^1} + 2^{1^0}$	6 $\sqrt{1+2+\dots+8}$	7  Fano plane	8  figure 8 knot	9 3^{2^1}	10 • Deadline for Early Advanced Registration
11 $1_2 + 11_2 + 111_2$	12  dodecahedron	13  How many Δ s?	14 $\#n : \varphi(n) = 14$	15 1111_2	16 $2^4 = 4^2$	17 $F_2 = 2^{2^2} + 1$
18 $\approx \frac{133}{e^2}$	19 $\approx 7e$	20 $(1 \times 2 + 3) \times 4$	21 $2^{2^1} - 21$ is prime.	22 $2^{2^2} + 2^2 + 2$	23 $\binom{5}{23} = -1$ the smallest quadratic nonresidue modulo 23	24 $4 + 4 + 4 \times 4$
$\pi(100) =$ 25 $\pi(25) = 9$ $\pi(9) = 4$	26 pandigital expression $\frac{65}{10} \times \frac{948}{237}$	27 $\approx 5\pi(e - 1)$	28 $28^5 = 17210368 = \left(\begin{matrix} 1+7+2+1 \\ +0+3+6+8 \end{matrix} \right)^5$	29 $\approx \frac{170}{\pi + e}$	30  地數龜文圖	31 pandigital expression $\frac{93}{24} \times \frac{856}{107}$
1	2	3				<h1>2014.5.</h1>

SUN	MON	TUE	WED	THU	FRI	SAT
 <p>1</p> $\int_1^e \frac{1}{x} dx$	<p>2</p> <p>223 is the smallest prime having only two 2s.</p>	 <p>3</p> <p>nontrivial knot</p>	 <p>4</p> <p>rep-tiles</p>	<p>5</p> $\pi \approx \log_5 \left(\begin{matrix} 1+1+5 \\ +5^2+5^3 \end{matrix} \right)$	 <p>6</p> <p>hexahedron</p>	 <p>7</p> <p>7.0000000857...</p> <p>Ed Pegg Jr.'s \triangle</p>
 <p>8</p> <p>the same areas</p>	<p>9</p> <p>1 nano = 10^{-9}</p>	<p>10</p> $\sqrt{2+3+5+7+11+13+17+19+23}$	<p>11</p> $11 \mid \overbrace{100 \dots 001}^{2n}$	<p>12</p> <p>12th Fibonacci number is 12^2.</p>	<p>13</p> <p>pandigital expression</p> $103428 \div 7956$	<p>14</p> $1^2 + 2^2 + 3^2$
<p>15</p> $15 \mid 10 \dots 05$	<p>16</p> $\text{EI} \times \text{L}$	<p>17</p> <p>pandigital expression</p> $\frac{68}{10} \times \frac{735}{294}$	<p>18</p> $2 \times 3 + 2! \times 3!$	 <p>19</p> <p>magic hexagon</p>	<p>20</p> $20 + \overbrace{1111 \dots 1111}^{20}$ <p>is prime.</p>	<p>21</p> <p>pandigital expression</p> $\frac{56}{23} \times \frac{897}{104}$
<p>22</p> $\approx \sqrt[3]{17^3 + 18^3}$	<p>23</p> $\approx \frac{227}{\pi^2}$	<p>24</p> <p>$24!$ is 24 digits long.</p>	<p>25</p> <p>1st Friedman #</p>	 <p>26</p> <p>magic sum</p>	<p>27</p> 3^3	<p>28</p> <p>$\frac{28! + 1}{28 + 1}$ is a 28 + 1 digits prime.</p>
<p>29</p> $\frac{1}{2} + \frac{1}{3} + \frac{1}{5} + \dots + \frac{1}{23} + \frac{1}{29} > 1$	<p>30</p> $\approx 11e$	<p>1</p>	<p>2</p>	<p>3</p>	<p>4</p>	<p>5</p>

6	7	8
----------	----------	----------

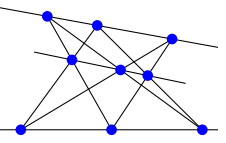

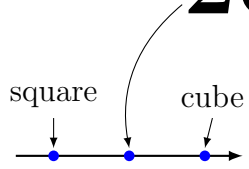


2014.6.

SUN	MON	TUE	WED	THU	FRI	SAT
29	30	1 $4 \div 4 + 4 - 4$	2 $\binom{2n}{1} - \binom{2n}{2} + \binom{2n}{3} - \dots + \binom{2n}{2n-1}$	3 # of regular tessellations of the plane	4 $\det A_3 = \det \begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$	5 p : prime ≥ 5 $\Rightarrow p^5 \mid \binom{p^2}{p} - \binom{p}{1}$
6 $\approx \log(\pi^4 + \pi^5)$	7 111_2	8 1 Byte = 8 bits	9 $\overbrace{11111111}^9 \div 9 = 12345679$	10 • Deadline for Advanced Registration	11  # of nets for a cube	12 $\approx \sqrt[3]{9^3 + 10^3}$
13 $1+2+3+\dots+12+13 = 1^2+2^2+3^2+\dots+6^2$	14 $\approx \sqrt{7^2 + 8^2 + 9^2}$	15  largest equilateral Δ	16 $16! = 14!5!2!$	17 There are 17 plane symmetry groups.	18 $2+3+13 = 2+5+11$	19 $19 \mid \overbrace{1\dots 19}^{19}, \overbrace{19\dots 9}^{19}$
20 XX	21 $1_2 \times 11_2 \times 111_2$	22 $22/7 \approx \pi$	23 $\overbrace{211111\dots 111113}^{23}$ is prime.	24 Λ_{24} Leech lattice	25 $1+2 \times 3 \times 4$	26 $\approx \sqrt{14^2+15^2+16^2}$
27 10000 days ≈ 27 years	28 $(1+2 \times 3) \times 4$	29 $3^{29} - 2^{29}$ is prime.	30 $\cos 30^\circ = \frac{\sqrt{3}}{2}$	31 $31^2 \times 325 = 31\sqrt[2]{325}$	1	2
3	4	5				


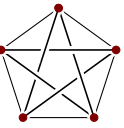
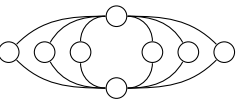
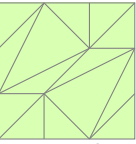
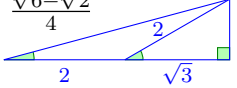
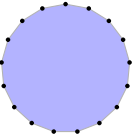
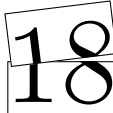
2014.7.

SUN	MON	TUE	WED	THU	FRI	SAT
27	28	29	30	31	1	 2 $V - E + F$
3 $(4 + 4 + 4) \div 4$	4 44449 is the smallest prime having only four 4s.	5  pentagon	6 	7  # of tetriminoes in TETRIS	8 $\pi_1(8) = \mathbb{Z} * \mathbb{Z}$	9 $21 - 12 = 32 - 23 = \dots = 98 - 89$
 10 • IMU GA 1st day	 11 • IMU GA 2nd day	12 <ul style="list-style-type: none"> • MENAO • Welcome Reception 	<ul style="list-style-type: none"> • Opening Ceremony • Laudation for Prize Winners • Nevanlinna Prize Lecture • Public Lecture (James Simons) 13	14 <ul style="list-style-type: none"> • Fields Medalist Lecture 1 • Emmy Noether Lecture 	15 <ul style="list-style-type: none"> • Fields Medalist Lecture 2 • Abel Lecture 	16 <ul style="list-style-type: none"> • Fields Medalist Lecture 3 • Conference Dinner 
17 • Excursion Day	18 <ul style="list-style-type: none"> • Math Education Day • Fields Medalist Lecture 4 	19 <ul style="list-style-type: none"> • Math History Day • Gauss Prize Lecture 	20 <ul style="list-style-type: none"> • Math Popularization Day • Chern Prize Lecture 	21 <ul style="list-style-type: none"> • Special Invited Lecture (Yitang Zhang) • Closing Ceremony 	22 2nd Smith number $22 = 2 \times 11$ $2 + 2 = 2 + (1 + 1)$	23 $\pi^{23} \approx 43^7$
24 1 day = 24 hours	25 256 and 625 are both squares.	26 $\frac{26}{65} = \frac{2}{5}$	27 $\approx 7\sqrt{2} + 6\sqrt{3} + 3\sqrt{5}$	28 pandigital expression $129780 \div 4635$	29 $\sqrt{20^2 + 21^2}$	30 
31 $\sqrt{21}$	1	2				<h1>2014.8.</h1>

SUN	MON	TUE	WED	THU	FRI	SAT
31	1 $\frac{a^2}{(a-b)(a-c)}$ + $\frac{b^2}{(b-a)(b-c)}$ + $\frac{c^2}{(c-a)(c-b)}$	2 $\sqrt{2}\sqrt{2}\sqrt{2}\sqrt{2}\dots$	3 triangular number: 1, 3, 6, 10, 15, ...	4 $1 - 2 + 3 - 4 + \dots$ $= \frac{1}{4}$	5 $5^4 =$ $2^4 + 2^4 + 3^4 + 4^4 + 4^4$	6 ⊖⊕⊖⊕
7 $\sqrt{2^2 + 3^2 + 6^2}$	8 The smallest composite Fibonacci number	9  Pappus configuration	10 6 weeks = 10! seconds	11 THREE THREE TWO TWO + ONE ELEVEN doubly true alphametic	12 1 year = 12 months	13 78910111213 is prime.
14 $\approx 9 \tan 1$	15 $1 + 2 + 3 + 4 + 5$	16 $\frac{16}{64} = \frac{1}{4}$	17 $2^3 + 3^2$	18 $\approx \sqrt[46]{1! + 2! + \dots + 46!}$	19 $\frac{19}{95} = \frac{1}{5}$	20  God's # for Rubik's cube
21 $1 + (2 + 3) \times 4$	22 $\lfloor \pi^e \rfloor$	23 23! is pandigital.	24 $p, q: \text{primes} > 3$ $\implies 24 \mid p^2 - q^2$	25 pandigital expression $\frac{68}{13} \times \frac{975}{204}$	26  square cube	27 pandigital expression $102546 \div 3798$ $= 175203 \div 6489$
28 The second perfect number	29 $\sum_{k=0}^4 \binom{2k}{k}$	30 $3^3 + 3$	1	2	3	4
5	6	7				



2014.9.

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	1 0.999999...	2 $\frac{1}{1} + \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$ $+ \frac{1}{16} + \frac{1}{32} + \dots$	3 $F_0 = 2^{2^0} + 1$	4  tetrahedron
5  K_5 is not planar.	6 $1 + 2 + 3$ $= 1 \times 2 \times 3$	7 $\approx \sqrt{3^2 + 4^2 + 5^2}$	8  Quaternion group Q_8	9 # of topologies on $\{1, 2, 3\}$	10 $(3 - \frac{1}{2}) \times 4$	11 10000000019 is the smallest $1 + 0 + \dots + 0 + 1 + 9$ digits prime.
12 1 ft = 12 in	13 $(13 - 1)! + 1 \equiv 0 \pmod{13^2}$	14  minimal triangulation of a torus	15 $\sin 15^\circ = \frac{\sqrt{6} - \sqrt{2}}{4}$ 	16 pandigital expression $150768 \div 9423$	17  17-gon is constructible.	18  A half of 18 is 10.
19 章法 Metonic cycle	20 $\approx 37 \cos 1$	21 10101_2	22 22 } two twos 22 } two twos ⋮	23 $23 = 0^5 + 1^4 + 2^3 + 3^2 + 4^1 + 5^0$	24 Every divisor - 1 is prime except 1 & 2.	25 $25^n = \dots 25$
26 $\sum_{n=1}^{\infty} \frac{n^3}{2^n}$	27 33_8	28 44_6	29 $29 \mid \overbrace{2\dots 29}, \overbrace{29\dots 9}$	30 pandigital expression $174690 \div 5823 = 174960 \div 5832$	31 $2^2 + 3^3$	1

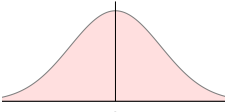
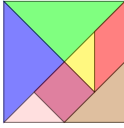
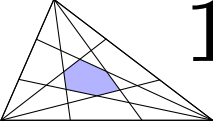
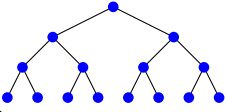
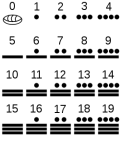
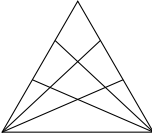

2

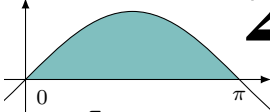
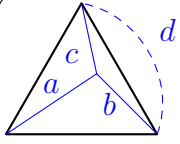
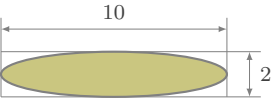
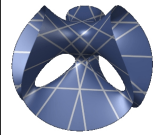
3

4



2014.10.

SUN	MON	TUE	WED	THU	FRI	SAT
26	27	28	29	30	31	 $\int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx$
2	3	4	5	6	7	8
$\sqrt{2 + \sqrt{2 + \sqrt{2 + \dots}}}$	$\sqrt{1+2\sqrt{1+3\sqrt{1+4\sqrt{\dots}}}}$	num = $\square + \square + \square + \square$	$\coth(\log\sqrt{2} \sinh(\log 2))$	3!	 tangram	$\frac{10^8-8}{8}$ and $\frac{10^{8+8}-8}{8}$ are both prime.
9	10	11	12	13	14	15
$\coth(\log\sqrt{\cosh(\log 2)})$	 Marion's theorem: $\frac{1}{10}$ area	$11 + 1.1 = 11 \times 1.1$	pandigital expression $107352 \div 8946$	$\sqrt{7 + 8 + 9 + \dots + 18 + 19}$	$\frac{1}{4+1} \binom{2 \cdot 4}{4}$ is the 4th Catalan number.	
16	17	18	19	20	21	22
$(-1 + 2 + 3) \times 4$	$\approx \sqrt{92\pi}$	$18 \mid 10 \dots 08$	$\frac{1 + 2 + 3 + \dots + 19}{10}$	 Mayan base-20 numeral system	111_4	$\approx \frac{19^2}{\pi^4 - 3^4}$
23	24	25	26	27	28	29
$\approx 9\sqrt[5]{109}$	4!	$25! \approx e^{58}$	$\pi - e \approx 11/26$	 How many Δ s?	$\approx 8e + \frac{17}{e}$	$2^2 + 3^2 + 4^2$
30	1	2	 SEOUL ICM 2014			
1 ft \approx 30 cm			<h1>2014.11.</h1>			

SUN	MON	TUE	WED	THU	FRI	SAT									
30	1 The identity of multiplication	2  $\int_0^\pi \sin x dx$	3  $3(a^4 + b^4 + c^4 + d^4) = (a^2 + b^2 + c^2 + d^2)^2$	4 $2 + 2 = 2 \times 2$	5 $\frac{95}{19} = 5$	6 $\binom{4}{2}$									
7 77767777 is the smallest prime having only seven 7s.	8 8^8 is 8 digits long.	9 123456789 $\times (2, 4, 5, 7, 8)$ are pandigital.	10 $\approx \frac{\pi^{32}}{e^{23}}$	11 $\coth(\log \sqrt{2 \tanh(\log 2)})$	12 12th prime is 37. 21st prime is 73.	13 78910111213 is prime.									
14 $\lfloor 10\sqrt{2} \rfloor$	15 <table border="1" data-bbox="353 667 465 785"> <tr><td>4</td><td>9</td><td>2</td></tr> <tr><td>3</td><td>5</td><td>7</td></tr> <tr><td>8</td><td>1</td><td>6</td></tr> </table> magic sum = 15	4	9	2	3	5	7	8	1	6	16 1 lb = 16 oz	17 $3^4 - 4^3$	18 EIGHTEEN =EICHLEEN	19 $\overbrace{11111 \dots 11111}^{19}$ is the second repunit prime.	20 $6 \times 20 \pm 1$ are both composite.
4	9	2													
3	5	7													
8	1	6													
21 circumference \approx 	22 $22!$ is 22 digits long.	23 $\approx 10 \log 10$	24 highly composite number	25 $1 + 3 + 5 + 7 + 9$	26 # of sporadic simple groups	27  Cubic surfaces contain 27 lines.									
28 $2 + 3 + 5 + 7 + 11$	29 $2^{29} = 536870912$ all distinct digits	30 $\sum_{r=0}^3 r \binom{3}{r}^2$	31 $-1 + 2^3 \times 4$	1	2	3									

4

5

6



2014.12.