

Day of Month	Day of Week	Remarkable Events.	ASTRONOMICAL NOTES.	Polar Distance of Pole Star.	MATHEMATICAL PROBLEMS.
1	SUND.	2nd Sunday after Trinity.	Moon near Venus.	1 27 39	Prob. 39.—Given to
2	Mond.	The Gordon Riots com. 1780.	Venus in Aries.	1 27 39	find x and y ; $x+y=5$,
3	Tuesd.	William Harvey died, 1657.		1 27 39	and $x^4+y^4=1241$.
4	Wed.	Kingdom of Netherlands div. 1831.	Moon farthest North.	1 27 39	Prob. 40.—How many
5	Thur.	(6) Alexander the Great b. B.C. 356	Mercury in Desc. node.	1 27 39	balls in a rectangular
6	Friday	Jeremy Bentham died, 1832.		1 27 39	pile of 50 courses, there
7	Satur.	Weber died, 1826.	Mars in Virgo.	1 27 39	being 20 balls in the top
8	SUND.	3rd Sunday after Trinity.	Mercury stationary.	1 27 39	row?
9	Mond.	(8) Mrs. Siddons died, 1831.	Saturn farthest North.	1 27 39	Prob. 41.—If a seg-
10	Tuesd.	Gavazzi Riots in Montreal, 1833.	Moon in apogee.	1 27 40	ment of a circle, whose
11	Wed.	Ben Jonson born, 1575.	Neptune 90° W. Sun.	1 27 40	base is 4, and height 1,
12	Thur.	Magna Charta signed, 1215.		1 27 40	revolve about a perpen-
13	Friday	Battle of Marengo, 1800.	Jupiter in Pisces.	1 27 40	dicular bisecting the base
14	Satur.	Battle of Naseby, 1645.		1 27 40	what will be the surface
15	SUND.	4th Sunday after Trinity.	Mars in Desc. node.	1 27 40	and solidity of the body
16	Mond.	(15) Luther excom. 1529.	Saturn near Mercury.	1 27 40	produced?
17	Tuesd.	John Wesley born, 1703.		1 27 40	Prob. 42.—If the seg-
18	Wed.	Battle of Waterloo, 1815.	Moon lowest.	1 27 40	ment in Problem 41, re-
19	Thur.	Sir Joseph Banks died, 1820.		1 27 40	volve around a line per-
20	Friday	Queen Victoria's Accession, 1837.	21st ♀ Inf. ♀ Sun.	1 27 40	pendicular to the end of
21	Satur.	Proclamation of Q. Victoria, 1837.	Sun enters Gemini.	1 27 40	the base, what will be the
22	SUND.	5th Sunday after Trinity.	Saturn in Gemini.	1 27 40	surface and solidity of
23	Mond.	Leibnitz born, 1646.	Neptune stationary.	1 27 40	the body generated?
24	Tuesd.	John Hampden died, 1643.	Saturn ♀ Sun.	1 27 40	Prob. 43.—If a figure
25	Wed.	Battle of Bannockburn, 1314.	Moon in Perigee.	1 27 40	of 6 equal sides, each of
26	Thur.	George IV. died, 1830.	25th. ♀ near Mercury.	1 27 40	which is 2 feet, revolve
27	Friday	Allan Cunningham died, 1840.		1 27 40	about one of its sides,
28	Satur.	Coronation of the Queen, 1838.	Uranus in Taurus.	1 27 40	what will be the surface
29	SUND.	6th Sunday after Trinity.	Jupiter 90° W. Sun.	1 27 40	and solidity of the body
30	Mond.	Earl of Argyll beheaded, 1685.	Moon highest.	1 27 40	generated?

ANSWERS TO THE PROBLEMS FOR 1855.

Prob. 32.—Let $15=2a$, and $66825=b$, then the numbers will be

$$=a \pm \sqrt{\left\{ \sqrt{\left(\frac{b}{10a} + \frac{4a^4}{5} \right)} - a^2 \right\}} = \frac{1}{2}(15) \pm \frac{1}{2}(3) = 9 \text{ or } 6 \text{ Ans.}$$

Prob. 33.—Let x =the required velocity. Then $(2)^4(161-12)+2x=400$. Hence $x=167\ 5\ 6$ ths, Ans.

Prob. 34.—5 weights, if used on both scales, viz. 1, 3, 9, 27, 81 lbs. But if used in one only 7 weights, viz. 1, 2, 4, 8, 16, 32, 37 lbs. Ans.

Note.—The most general mode of solving questions of this nature, is by the ternary scale of notation.—See "Barlow's Theory of Numbers," Chap. 10.

Prob. 25.—Let x^2+y^2 be the numbers= a cube. Now let $x=rz$, and $y=sz$, then $r^2z^2+s^2z^2=x^2+y^2=a$ cube. Put $(z^2+v^2)=r^2z^2+s^2z^2$, then $z=v^2(r^2+s^2)$, $x=r^2v^2(r^2+s^2)$, and $y=s^2v^2(r^2+s^2)$, in which r , s , and v , are any numbers we choose to make them. If $r=2$, $s=1$, and $v=10$, then $x=10$, $y=5$, and hence $x^2=100$, $y^2=25$, Ans.

Prob. 19, of 1854. By Dennis Smith, Quebec. Given $x^6y^3-x^{12}=9728$ and $x^2y^5+x^8y^2=40320$ to find x and y . Put $y=x^2r$. Then $x^{12}r^3-x^{12}=9728$, and $x^{12}r^5+x^{12}r^2=40320$. Hence $x^{12}=9728+(r^3-1)=40320+(r^5+r^2)$. Therefore $9728r^2/(r^3+1)-40320+(r^3-1)=0$. Hence $r=1.5$. Then $x^{12}=9728+(2.375)=4096$. Hence $x=2$, and $x^2r=y=6$. Ans.

Note.—This solution is the only one received, yet it is not complete, for the determination of r is not plain. Will others furnish short solutions?

GEOM. PROB. 1.—Let $8=a$, $2=b$, and $3.1416=p$. Then the surface= $bp^2(a+b)=197.392$ inches Ans.

Solidity= $\frac{1}{2}bp^2(a+b)=98.696$ cubic inches, Ans.

Moon's PHASES.

- New Mo
- First Qu
- Full Mo
- Last Qu
- ☾ Apogee
- ☾ Perigee

Day	Mo.	Ve.	Sun	Mon
1	...	11		
7	...	11		
13	...	11		
19	...	11		
25	...	11		
30	...	11		

Day of Month	Day of Week
1	SUND.
2	Mond.
3	Tuesd.
4	Wed.
5	Thur.
6	Friday
7	Satur.
8	SUND.
9	Mond.
10	Tuesd.
11	Wed.
12	Thur.
13	Friday
14	Satur.
15	SUND.
16	Mond.
17	Tuesd.
18	Wed.
19	Thur.
20	Friday
21	Satur.
22	SUND.
23	Mond.
24	Tuesd.
25	Wed.
26	Thur.
27	Friday
28	Satur.
29	SUND.
30	Mond.

Prob. 44.—
at 12 o'clock
with a speed
earth in two
longitude will
that it is Tu

Prob. 45.—