

Day of Month	Day of Week	Remarkable Events.	ASTRONOMICAL NOTES.	Polar Distance of Pole Star.	MATHEMATICAL PROBLEMS.
1	Mond.	Cartier discovered Saguenay, 1535.	Mercury in Desc. node.	1 27 26	Prob. 61.—Required
2	Tuesd.	London burnt, 1666.	Moon in Apogee.	1 27 26	the solidity of an upper
3	Wed.	Cromwell died, 1658.	Venus in Leo.	1 27 26	transverse segment of
4	Thur.	Blake born, 1657.	Venus South, 0.47 Eve.	1 27 25	the spheroid of Prob-
5	Friday	Lord Metcalfe died, 1846.	Moon near Mars.	1 27 25	lem 50, its height being
6	Satur.	James II. died, 1701.	Uranus in Taurus.	1 27 25	2 feet.
7	SUND.	16th Sunday after Trinity.	Mars in Libra.	1 27 24	Prob. 62.—If a trans-
8	Mond.	Nativity B. V. M.	Moon farthest South.	1 27 24	verse segment of the el-
9	Tuesd.	William the Conqueror died, 1067.	Venus on Equator.	1 27 24	lipse of Problem 50, re-
10	Wed.	Mungo Park died, 1771.	Mercury in Aphelion.	1 27 23	volve about its transverse
11	Thur.	Lord Thurlow died, 1806.	Jupiter in Pisces.	1 27 23	axis, what surface and
12	Friday	Siege of Vienna, 1683.	15th Moon in Perigee.	1 27 22	solidity will it produce,
13	Satur.	Battle Quebec. Wolf killed 1759.	Moon near Jupiter.	1 27 22	the height of the segment
14	SUND.	17th Sunday after Trinity.	Venus South, 0.54 Eve.	1 27 21	being 2 feet?
15	Mond.	Malta taken 1800.	Ug near Moon.	1 27 21	Prob. 63.—Given to
16	Tuesd.	George I. landed in England, 1714.	Moon farthest North.	1 27 20	find x ;
17	Wed.	Siege of Gibraltar ended, 1782.	22nd. Moon near $\frac{1}{2}$	1 27 20	$\left\{ \frac{1}{1+x} \left(\frac{1}{1+x} \right)^{\frac{1}{2}} \right\}^{\frac{1}{2}}$
18	Thur.	Lawrence Sterne died, 1766.	Sun enters Virgo.	1 27 19	$= \frac{1}{12} \sqrt{2x}$
19	Friday	Battle of Poitiers, 1359.	22nd. $\frac{1}{2}$ Gr. Elong. E.	1 27 19	Prob. 64.—If a con-
20	Satur.	Battle of Newbury, 1643.	Moon near Regulus.	1 27 18	jugate segment of the
21	SUND.	18th Sunday after Trinity.	Saturn in Gemini.	1 27 18	ellipse of Problem 50,
22	Mond.	George III. crowned, 1761.	Jupiter $\frac{1}{2}$ Sun.	1 27 17	revolve about its con-
23	Tuesd.	Battle of Assaye, 1803.	Venus South, 1.1 Eve.	1 27 17	jugate axis, what will be
24	Wed.	(25) Porson died, 1808.	Sun eclipsed, invisible.	1 27 17	the solidity of the body
25	Thur.	Columbus's second voyage, 1492.	Moon in Apogee.	1 27 16	produced, its height be-
26	Friday	Philadelphia captured, 1777.	Moon near Venus.	1 27 16	ing 1 foot?
27	Satur.	Nelson born, 1758.			
28	SUND.	19th Sunday after Trinity.			
29	Mond.	Michaelmas.			
30	Tuesd.	Maj. Gen. Sir J. Brock. Pres. 1811			

ANSWERS TO THE EXAMPLES FOR 1855.

Ex. 19.—Let $52=2a$, $104=b$, $\sqrt{(2029)}=c$, then the sides $=\frac{1}{2}b \pm \sqrt{(a^2+c^2-\frac{1}{2}b^2)}=53$ and 51. Ans.

Ex. 20.—Let $75=a$, $61=b$, $\sqrt{(3889)}=c$, then the base $=2\sqrt{\frac{1}{2}(a^2+b^2)-c^2}=56$. Ans.

Ex. 21.—Let $194=b$, $66=a$, and $200=d$, then the one side $=\sqrt{\frac{1}{m}(a^2n+mn^2)}=81.3656$, and the other $=\sqrt{\frac{1}{n}(a^2m+nm^2)}=157.4395$.

In these formulæ, $m=\frac{1}{2}b+\frac{1}{2}\sqrt{(b^2-4r^2)}$ and $n=\frac{1}{2}b-\frac{1}{2}\sqrt{(b^2-4r^2)}$, and r =the product of the segments of the base, or $r=a\left\{\sqrt{\frac{1}{2}(a^2+dc)}-\frac{1}{2}a\right\}$, in which $c=\sqrt{\left\{\left(\frac{1}{2}(d-b)\right)^2+b\left(\frac{1}{2}(d-b)\right)+\frac{1}{2}d\right\}}=124.31$.

Ex. 22.—Let $12=a$, $7=r$, then the sum of the legs $=2r^2 \div (2r-a)=49$, and their product $=2r^2a \div (2r-a)=588$. The legs will be expressed by $r\{r \pm \sqrt{(r^2-4ra+2a^2)}\} \div (2r-a)=21$, or 28. Ans.

The hypothenuse $=2r(a-r) \div (2r-a)=35$. Ans.

Ex. 23.—Let $12=a$, then the radii of the circles required $=a(2\sqrt{3}-3)=5.568$. Ans.

Ex. 24.—Let $4=a$, then $a\left\{\frac{1}{2}(3 \pm \sqrt{5})\right\}=10.472$, or 6.472. Ans.

Note.—As the question reads, it is immaterial about the base.

Ex. 25.—Let $39=a$, $b=24$, and $8:5::m:n$, then one side $=\sqrt{b^2+(am^2 \div (m^2-n^2) \pm \sqrt{a^2m^4 \div (m^2-n^2)^2 - a^2m^2 \div (m^2-n^2) - b^2})^2}=40$. The other side $=40n \div m=25$ Ans.

- First Q
- Full M
- Last Q
- New M
- Apogee
- Perigee

Day Mo.	Ve	So
1 ...	0	0
7 ...	0	0
13 ...	0	0
19 ...	0	0
25 ...	1	1
30 ...	1	1

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

Prob. 65.
metrical pro
squares is 1

Prob. 66.
to the corn
miles. Wha
Prob. 67.