

Day of Month	Day of Week.	Remarkable Events.	ASTRONOMICAL NOTES.	Polar Distance of Pole Star.	MATHEMATICAL PROBLEMS.
1	Wed.	Cornellie died, 1684.	Moon near Mercury.	1 27 16	PROB. 69.—“Given $x^4 = 2x^3 + x = 132$ ” to find x .
2	Thur.	Cartier arrived at Montreal, 1535.	Venus in Libra.	1 27 15	
3	Friday	Old St. Matthew.	Venus South, 1.5 Eve.	1 27 15	PROB. 70.—If a trans-
4	Satur.	(3) Dey of Algiers strangled, 1817.	Moon near Mars $\varnothing$ $\times$	1 27 14	verse segment of the el-
5	SUND.	20th Sunday after Trinity.	Mercury Stationary.	1 27 14	lipse of Problem 50,
6	Mond.	Louis Philippe born, 1773.	Saturn 90° W. of Sun.	1 27 14	whose height is 2 feet,
7	Tuesd.	Great Fire at Miramichi, 1825.	6th. Moon lowest.	1 27 13	revolve about its base,
8	Wed.	Sheridan born, 1751.	Jupiter South, 11 Eve.	1 27 13	what will be the solidity
9	Thur.	Dutch Fleet defeated, 1797.	Mars in Scorpio.	1 27 12	of the body thus made?
10	Friday	Benjamin West born, 1783.	Venus South, 1.11 Eve.	1 27 12	PROB. 71.—If a conju-
11	Satur.	Canova died, 1822.	Moon near Neptune.	1 27 12	gate segment of the el-
12	SUND.	21st Sunday after Trinity.	Moon near Jupiter.	1 27 11	lipse of Problem 50,
13	Mond.	Battle of Queenston, 1812.	Moon perigee.	1 27 11	whose height is 1 foot,
14	Tuesd.	Battle of Hastings, 1066.	13th. Moon eclipsed.	1 27 11	revolve about its base,
15	Wed.	Murat shot, 1815.	Moon near Uranus.	1 27 10	what will be the solidity
16	Thur.	Kosciusko died, 1817.	Venus South, 1.16 Eve.	1 27 10	of the body thus pro-
17	Friday	Sir Phillip Sydney killed, 1596.	$\times$ Inf. $\varnothing$ Sun.	1 27 9	duced?
18	Satur.	Battle of Leipsic, 1813.	Moon highest.	1 27 9	PROB. 72.—If the base
19	SUND.	22nd Sunday after Trinity.	Saturn near Moon.	1 27 9	of a parabola be 6 feet,
20	Mond.	Battle of Navarino, 1827.	Jupiter South, 10.8 Ev.	1 27 8	and its height or axis 8
21	Tuesd.	Battle of Trafalgar, 1805.	$\times$ in Ascen. node.	1 27 8	feet, and it revolve about
22	Wed.	Lord Holland died, 1840.	Moon near Regulus.	1 27 8	its axis, what will be the
23	Thur.	Battle of Edgehill, 1842.	Sun enters Libra.	1 27 7	surface and solidity of
24	Friday	Edict of Nantes revoked, 1685.	Venus South, 1.24 Eve.	1 27 7	the body it will make?
25	Satur.	(26) Hogarth died, 1764.	Mercury Stationary.	1 27 6	PROB. 73.—If an hy-
26	SUND.	23rd Sunday after Trinity.	Saturn Stationary.	1 27 6	perbola, whose height is
27	Mond.	Sir Walter Raleigh born, 1618.	Moon $\varnothing$ Mercury.	1 27 6	8 feet and base 6 feet,
28	Tuesd.	Alfred the Great died, 900.	Jupiter South, 9.33 Ev.	1 27 5	revolve about its axis,
29	Wed.	Morland died, 1804.	Mars farthest South.	1 27 5	what will be the surface
30	Thur.	(29) Battle of Fort Erie.	Venus South 1.32 Eve.	1 27 5	and solidity of the body
31	Friday	All hallow Eve.	Moon near Regulus.	1 27 4	generated?

ANSWERS TO THE EXAMPLES FOR 1855.

Ex. 26.—Let $21=a$, $30=b$, and $80^\circ=A$, then the area $=\frac{1}{2}ab \sin A=310.214457$. Ans.
 Ex. 27.—Area $=\frac{1}{2} 3x^4x=\frac{1}{2}\sqrt{2(3x^4x+x^6x)}$, or $6x^4x=\sqrt{2(3x^4x+x^6x)}$. Hence dividing by x^4x we get $\sqrt{2(x^2x+3)}=6$. Squaring both sides, after transposing, we get $x^4x=\frac{1}{2}(54-36\frac{1}{2})$. Therefore $\frac{1}{2} 3x^4x=\frac{1}{2}(81-54\frac{1}{2})=2.3162328$. Ans.

Ex. 28.—Let $108=a^2$, then sides will $=\frac{1}{2}a\sqrt{6}=9\sqrt{2}$; $\frac{2}{3}a\sqrt{6}=12\sqrt{2}$; and $\frac{5}{6}a\sqrt{2}=15\sqrt{2}$. Ans.

Ex. 29.—Let $10=a$, the side $=a\sqrt{(2-\sqrt{3})}=5.17687064$. Ans.

Ex. 30.—Let $4140=\frac{1}{2}a$, $202=b$, $41=c$. The perpendicular falling upon $c=e\div c$; and the third side $=\sqrt{c^2+b^2\pm 2\sqrt{(b^2c^2-a^2)}}=207$, or 205.234 . Ans.

Note.—Mr. Sheehan has furnished a formula for this problem substantially the same as the above.

Ex. 31.—Let $25=a$, $35=b$, $31=c$, $19=d$, and x =diagonal, then $x^2=\frac{1}{2}(a^2+c^2)\pm\sqrt{\frac{1}{4}(b^2d^2-\frac{1}{4}(c^2-a^2)^2)}=(37.9)^2$; and $\frac{1}{2} x^2=\frac{1}{2}(37.9)^2=718.205$ area required. Ans.

Ex. 32.—Let $20.2825=a$, and $3x$ =perp. and $4x$ =the base, then $5x$ =hypoth., and $2x$ =diameter of inscribed circle. Then $\frac{12}{7}x$ =side of inscribed square. Hence $x^2\times 3.1416=\left(\frac{12x}{7}\right)^2=a$, and $x=\sqrt{a\div(3.1416-144\div 49)}=10$. Hence $3x=30$, $4x=40$, $5x=50$. Ans.

Ex. 33.—The area enclosed by the circumferences of the two circles is intended to be understood. Ans. 12115.06, the two small segments being = 765.5.

Can some one give us a literal formula for this?

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

Day	Mo.	Ven.	Sat.	Jup.	Ura.	Nept.
1	...	1	...	...	...	...
7	...	1	...	...	...	...
13	...	1	...	...	...	...
19	...	1	...	...	...	...
25	...	1	...	...	...	...
31	...	1	...	...	...	...

Day of Month	Day of Week.	
1	Wed.	27
2	Thur.	28
3	Friday	29
4	Satur.	30
5	SUND	31
6	Mond.	1
7	Tuesd.	2
8	Wed.	3
9	Thur.	4
10	Friday	5
11	Satur.	6
12	SUND	7
13	Mond.	8
14	Tuesd.	9
15	Wed.	10
16	Thur.	11
17	Friday	12
18	Satur.	13
19	SUND	14
20	Mond.	15
21	Tuesd.	16
22	Wed.	17
23	Thur.	18
24	Friday	19
25	Satur.	20
26	SUND	21
27	Mond.	22
28	Tuesd.	23
29	Wed.	24
30	Thur.	25
31	Friday	26

PROB. 74.
are 100, 120
divided into
the corners,
Required th
PROB. 75