

ICAL PROBLEMS.

77.—If a eye-
height is 5
lye about its
at surface and
fill it generate?
78.—What is
ty and surface
ge, whose base
ong and 1 foot
e height being
length of edge

0.—If the ruler
m 85 be sawed
bliquely cross-
king the height
allest part 6
and nothing;
be the surface
ty of each part,
istance around
part?

0.—If the ruler
n 85 be cut by a
rough its side
making the
f the smaller
inches, and its
inch wide, what
e surface and
f each part?

797; another
=49.244. Ans.
-39, and perp.

1-67th, Ans.
-2028 of the

$b^2c^4 + 2a^2b^4c^2 -$
 $(\sqrt{2(1/5-2)})$

he side= $\frac{2}{3}\sqrt{3}$

hypothenuse

$(m^2-n^2)=30$

MOON'S PHASES.		D. Toronto.		Quebec.		Twilight or Daylight begins and ends at—											
						Days.		Toronto.		Halifax.		Montreal.		Fredric'n.		Quebec.	
								Beg. End		Beg. End		Beg. End		Beg. End		Beg. End	
								A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.	A. M. P. M.
☾ First Quarter ...	5	0	5 ev	0	38 ev												
☾ Full Moon	12	3	38 ev	4	10 ev												
☾ Last Quarter ...	19	5	17 mo	5	49 mo	15	06	285	06	285	06	275	16	275	06	27	06
☾ New Moon	27	10	44 mo	11	16 mo	105	106	185	106	185	76	225	116	175	126	16	16
☾ Perigee.....	10	11	51 ev	0	23 mo	205	216	115	226	105	236	95	236	95	266	8	8
☾ Apogee	23	6	15 mo	6	47 mo	305	316	75	346	45	346	45	346	45	356	3	3

Ephemeris of the Planets, &c.

Day Mo.	Venus South Even.	Mars South Even.	Jupit South Even.	Satur South Morn.	Sun's Long-tude.	Sun's Right Ascen.	Venus Right Ascen.	Mars Right Ascen.	Jupit Right Ascen.	Satur Right Ascen.	Venus Decl. South.	Mars Decl. South.	Jupit Decl. South.	Satur Decl. North.
	h m	h m	h m	h m	° /	h m	h m	h m	h m	h m	° /	° /	° /	° /
1 ...	1 34	3 27	9 17	4 18	219 30	14 28	16 19	18 12	0 3	7 122	18	25	0 1	24 22 4
7 ...	1 42	3 23	8 52	3 54	225 31	14 52	16 51	18 32	0 1	7 123	37	24 54	1 32	22 5
13 ...	1 51	3 20	8 27	3 30	231 34	15 16	17 23	18 52	0 0	7 024	32	24 45	1 37	22 7
19 ...	2 0	3 16	8 2	3 9	237 37	15 41	17 55	19 12	0 0	6 5925	024	26 1	39	22 8
25 ...	2 8	3 12	7 39	2 41	243 41	16 7	18 28	19 32	0 0	6 5825	224	0 1	38	22 10
30 ...	2 16	3 9	7 20	2 20	248 45	16 28	18 55	19 49	0 0	6 5724	42	23 25	1 35	22 13

Day of Month	Day of Week	Day of Year	Calendar for Upper Canada and Nova Scotia.			Calendar for Lower Canada and New Brunswick.			DEPARTMENT FOR ALL OF UPPER AND LOWER CANADA.									
			Sun Rises.	Sun Sets.	Moon Sets.	Sun Rises.	Sun Sets.	Moon Sets.	Pole Star in Meridian Evening.	Shadow at Noon Morning.	Mn's Age Noon.	Moon South Even.	Moon's Place at 7 P. M.	Sun's Declination North.				
1	Satur.	306	6 37	4 50	6 54	6 46	4 42	6 42	10 21	3 11	43 42	3.8	2 44	♊	25 14	39 52		
2	SUND.	307	6 39	4 49	7 48	6 47	4 41	7 36	10 17	7 11	43 42	4.8	3 39	♋	8 14	58 51		
3	Mond.	308	6 40	4 47	8 52	6 48	4 40	8 42	10 13	11 11	43 42	5.8	4 34	♌	21 15	17 35		
4	Tuesd.	309	6 41	4 46	10 4	6 49	4 39	9 55	10 9	15 11	43 44	6.8	5 29	♍	4 15	36 4		
5	Wed.	310	6 43	4 45	11 19	6 51	4 37	11 11	10 5	19 11	43 46	7.8	6 22	♎	17 15	54 17		
6	Thur.	311	6 44	4 44	Morn	6 53	4 35	Morn	10 1	23 11	43 49	8.8	7 13	♏	1 16	12 15		
7	Friday	312	6 45	4 42	35 6	6 54	4 33	31	9 57	26 11	43 52	9.8	8 8	♐	15 16	29 56		
8	Satur.	313	6 47	4 41	1 42	6 56	4 32	1 40	9 53	30 11	43 57	10.8	8 52	♑	30 16	47 20		
9	SUND.	314	6 48	4 40	3 8	6 58	4 30	3 9	9 49	34 11	44 2	11.8	9 42	♒	15 17	4 27		
10	Mond.	315	6 49	4 39	4 26	6 59	4 29	4 28	9 45	38 11	44 8	12.8	10 35	♓	30 17	21 16		
11	Tuesd.	316	6 51	4 39	Rises	7 04	4 28	Rises	9 41	41 11	44 15	13.8	11 31	♈	15 17	37 48		
12	Wed.	317	6 52	4 38	4 40	7 14	4 27	4 31	9 37	45 11	44 23	14.8	Morn	♉	30 17	54 1		
13	Thur.	318	6 53	4 37	5 25	7 24	4 26	5 13	9 33	49 11	44 32	15.8	0 31	♊	14 18	9 55		
14	Friday	319	6 55	4 36	6 20	7 44	4 25	6 8	9 29	53 11	44 41	16.8	1 34	♋	29 18	25 31		
15	Satur.	320	6 56	4 35	7 23	7 64	4 24	7 11	9 25	56 11	44 52	17.8	2 37	♌	13 18	40 47		
16	SUND.	321	6 57	4 34	8 32	7 84	4 22	8 22	9 22	0 11	45 3	18.8	3 37	♍	26 18	55 43		
17	Mond.	322	6 59	4 33	9 41	7 94	4 21	9 32	9 18	4 11	45 15	19.8	4 23	♎	9 19	10 19		
18	Tuesd.	323	7 04	4 32	10 48	7 104	4 20	10 42	9 14	7 11	45 28	20.8	5 24	♏	22 19	24 35		
19	Wed.	324	7 14	4 31	11 54	7 114	4 19	11 49	9 10	11 11	45 42	21.8	6 10	♐	4 19	38 30		
20	Thur.	325	7 34	4 30	Morn	7 144	4 18	Morn	9 6	15 11	45 57	22.8	6 53	♑	16 19	52 3		
21	Friday	326	7 44	4 29	56 7	7 154	4 17	54	9 2	18 11	46 12	23.8	7 33	♒	28 20	5 14		
22	Satur.	327	7 54	4 29	1 57	7 164	4 16	1 57	8 58	22 11	46 28	24.8	8 12	♓	10 20	18 4		
23	SUND.	328	7 64	4 27	2 57	7 184	4 16	2 59	8 54	26 11	46 46	25.8	8 50	♈	22 20	30 31		
24	Mond.	329	7 84	4 26	4 07	7 194	4 15	4 3	8 50	29 11	47 3	26.8	9 30	♉	3 20	42 36		
25	Tuesd.	330	7 94	4 26	5 57	7 204	4 14	5 10	8 46	33 11	47 22	27.8	10 13	♊	15 20	54 17		
26	Wed.	331	7 104	4 25	6 107	7 224	4 14	6 18	8 42	36 11	47 42	28.8	10 58	♋	27 21	5 35		
27	Thur.	332	7 114	4 25	Sets.	7 234	4 13	Sets.	8 38	40 11	48 2	0 11	11 47	♌	10 21	16 29		
28	Friday	333	7 124	4 24	4 50	7 244	4 12	4 38	8 34	43 11	48 22	1.1	Ev. 39	♍	22 21	26 58		
29	Satur.	334	7 144	4 24	5 43	7 264	4 12	5 31	8 30	47 11	48 44	2.1	1 34	♎	5 21	37 3		
30	SUND.	335	7 154	4 23	6 46	7 274	4 11	6 34	8 26	56 11	49 6	3.1	2 30	♏	18 21	46 44		

Prob. 81.—What is the 5th root of $32x^5 - 30x^4 + 80x^3 - 40x^2 + 10x - 1$?

Prob. 82.—If the the measure of Problem 88 be emptied so as to let 3 inches of the bottom appear, what will be the convex surface and solidity of the empty and filled space?

Prob. 83.—If the measure of Problem 88 be

emptied so as to show 4 inches of the bottom, what will be the solidity and entire surface of the filled and empty space, and the distance around the edge of the water?

Prob. 84.—Required the surface and solidity of a solid bounded by four equilateral triangles, each side being six feet.