

ICAL PROBLEMS.

—If the figure
a 55, revolve
pendicular to
diagonal, what
solidity will be

8.—The sides
lateral are each
If it revolve
side, what
solidity will
be?

9.—If the tri-
Problem 48
out a line per-
to the end of
that will be the
solidity of pro-
duced.

—If an ellipse
transverse and
diameters are
feet, revolve
transverse axis,
be the surface
of the spher-
produced?

11.—Given to
— $8x^2 + 19x =$

$$= ab \div (a+b) =$$

$$= \sqrt{\frac{1}{4}(a-b)^2}$$

$$\sqrt{(4c^2 - b^2)}} \div$$

$$2 + c^2 - b^2 \} =$$

$a+b+c$, then

$$+c)(a+b-c)$$

$$+c)(a-b+c)$$

$$-c^2 \} = 4\sqrt{2} =$$

be 6, then the

MOON'S PHASES.	D.	Toronto.		Quebec.		Twilight or Daylight begins and ends at—															
						Days.	Toronto.			Halifax.			Montreal.			Fredricton.			Quebec.		
		<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>		Beg.	End	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.		
☾ New Moon.	2	4	13 mo	4	45 mo																
☾ First Quar.	10	2	5 mo	2	37 mo																
☀ Full Moon.	17	4	14 ev	4	46 ev	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>		
☾ Last Quar.	24	9	45 mo	10	17 mo	1	2	1	10	6	1	50	10	17	1	39	10	26	1	32	
☉ New Moon.	31	3	51 ev	4	23 ev	10	2	14	9	56	2	2	10	8	1	52	10	18	1	46	
☾ Apogee ...	9	1	39 mo	2	11 mo	20	2	28	9	44	2	20	9	54	2	12	10	1	2	6	
☀ Perigee ...	21	3	21 mo	3	53 mo	30	2	46	9	26	2	41	9	31	2	33	9	39	2	28	

Ephemeris of the Planets, &c.

Day Mo.	Venus South Morn.	Mars South. Even.	Jupiter South. Morn.	Saturn South. Morn.	Sun's Longi- tude.	Sun's Right Ascen.	Venus Right Ascen.	Mars Right Ascen.	Jupiter Right Ascen.	Saturn Right Ascen.	Venus Decl. North.	Mars Decl. South.	Jupiter Decl. North.	Saturn Decl. North.
	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>°</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>°</i>	<i>°</i>	<i>°</i>	<i>°</i>
1 ...	11 41	6 15	5 53	11 40	99 58	6 43	6 20 12	56	0 32	6 20 23	40	6 21	1 59	22 40
7 ...	11 49	6 1	5 31	11 20	105 41	7 8	6 53 13	6	0 33	6 23 23	26	7 32	2 8	22 39
13 ...	11 58	5 48	5 9	11 59	111 24	7 33	7 25 13	16	0 35	6 27 22	46	8 44	2 14	22 37
19 ...	Ev. 6	5 36	4 46	10 39	117 7	7 57	7 56 13	27	0 36	6 30 21	43	9 58	2 18	22 35
25 ...	0 13	5 24	4 19	10 19	122 51	8 21	8 27 13	39	0 36	6 33 20	16	11 13	2 19	22 33
31 ...	0 20	5 13	3 59	9 58	128 36	8 44	8 58 13	52	0 36	6 36 18	29	12 29	2 18	22 31

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.	Sun Rises.	Sun Sets.	Moon Sets.	Pole Star in Meridian Morning.	Shadow at Noon Mark. Evening.	Mn's Age Noon.	Moon South. Morn.	Moon's Place, 7 P. M.	Sun's Declination North.			
			<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m s</i>	<i>h m s</i>	<i>days</i>	<i>h m</i>	<i>s</i>	<i>°</i>	<i>°</i>	<i>'</i>	<i>"</i>
1	Tuesd.	183	4 19	7 48	Sets	4 19	7 47	Sets	6 27	39 12	3 35	28.7	11 26	II	5 23	5 10	do.	19	23	0 41
2	Wed.	184	4 20	7 48	8 33	4 20	7 47	8 45	6 23	41 12	3 46	0.3	Ev. 24	do.	19	23	0 41			
3	Thurs.	185	4 20	7 47	9 16	4 21	7 47	9 26	6 19	50 12	3 58	1.3	1 20	do.	22	55	48			
4	Friday	186	4 21	7 47	9 48	4 21	7 47	9 55	6 15	54 12	4 8	2.3	2 11	do.	14	22	50 31			
5	Satur.	187	4 22	7 47	10 15	4 22	7 46	10 20	6 11	58 12	4 19	3.3	2 58	do.	27	22	44 50			
6	SUND.	188	4 22	7 46	10 35	4 23	7 46	10 38	6 8	3 12	4 29	4.3	3 41	do.	9	22	38 45			
7	Mond.	189	4 23	7 46	10 54	4 24	7 46	10 56	6 4	8 12	4 39	5.3	4 22	do.	21	22	32 17			
8	Tuesd.	190	4 24	7 46	11 12	4 25	7 46	11 12	6 0	13 12	4 48	6.3	5 1	do.	3	22	25 26			
9	Wed.	191	4 25	7 45	11 29	4 25	7 45	11 27	5 56	18 12	4 57	7.3	5 40	do.	15	22	18 11			
10	Thurs.	192	4 25	7 45	11 47	4 25	7 45	11 44	5 52	23 12	5 5	8.3	6 20	do.	26	22	10 33			
11	Friday	193	4 26	7 44	Morn	4 26	7 44	Morn	5 48	28 12	5 13	9.3	7 2	do.	8	22	2 32			
12	Satur.	194	4 27	7 44	8 4	4 27	7 44	1	5 44	33 12	5 21	10.3	7 47	do.	21	21	54 9			
13	SUND.	195	4 28	7 43	33	4 27	7 43	24	5 40	38 12	5 28	11.3	8 37	do.	3	21	45 23			
14	Mond.	196	4 29	7 42	1 54	4 28	7 42	55	5 36	43 12	5 35	12.3	9 31	do.	16	21	36 15			
15	Tuesd.	197	4 30	7 41	1 45	4 29	7 42	1 34	5 32	48 12	5 41	13.3	10 29	do.	29	21	26 45			
16	Wed.	198	4 30	7 41	2 40	4 30	7 42	2 28	5 28	53 12	5 46	14.3	11 29	do.	13	21	16 53			
17	Thurs.	199	4 31	7 40	Rises	4 31	7 41	Rises	5 24	58 12	5 51	15.3	Morn	do.	27	21	6 39			
18	Friday	200	4 32	7 39	8 42	4 32	7 40	8 51	5 21	3 12	5 56	16.3	0 29	do.	11	20	56 4			
19	Satur.	201	4 33	7 39	9 12	4 33	7 39	9 17	5 17	8 12	6 0	17.3	1 27	do.	26	20	45 8			
20	SUND.	202	4 34	7 38	9 37	4 34	7 38	9 40	5 13	13 12	6 3	18.3	2 21	do.	10	20	33 51			
21	Mond.	203	4 35	7 37	10 0	4 35	7 37	10 0	5 9	18 12	6 6	19.3	3 12	do.	24	20	22 13			
22	Tuesd.	204	4 36	7 36	10 22	4 36	7 36	10 21	5 5	22 12	6 8	20.3	4 1	do.	9	20	10 15			
23	Wed.	205	4 37	7 35	10 44	4 37	7 35	10 41	5 1	27 12	6 10	21.3	4 49	do.	23	19	57 56			
24	Thurs.	206	4 38	7 34	11 10	4 38	7 34	11 5	4 57	32 12	6 11	22.3	5 38	do.	7	19	45 17			
25	Friday	207	4 39	7 33	11 41	4 39	7 33	11 33	4 53	37 12	6 12	23.3	6 29	do.	21	19	32 19			
26	Satur.	208	4 40	7 32	Morn	4 40	7 32	Morn	4 49	42 12	6 12	24.3	7 23	do.	5	19	19 1			
27	SUND.	209	4 41	7 31	17	4 41	7 31	8	4 45	47 12	6 11	25.3	8 19	do.	18	19	5 23			
28	Mond.	210	4 43	7 30	1 4	4 42	7 30	52	4 41	52 12	6 10	26.3	9 17	do.	1	18	51 27			
29	Tuesd.	211	4 44	7 28	2 0	4 43	7 29	1 47	4 37	57 12	6 9	27.3	10 15	do.	15	18	37 12			
30	Wed.	212	4 45	7 27	3 2	4 44	7 28	2 50	4 34	2 12	6 6	28.3	11 11	do.	28	18	22 38			
31	Thurs.	213	4 46	7 26	Sets.	4 46	7 26	Sets.	4 30	7 12	6 4	29.3	Ev. 3	do.	10	18	7 47			

PROB. 52.—Required the smallest four figures which being divided by 2, 3, 4, 5, 6, 7, 8, 9, will leave 1, 2, 3, 4, 5, 6, 7, 8.

PROB. 53.—The base of a triangular pyramid is 4, 5, and 6 feet, and altitude 12. Required the largest cube, and largest globe, that can be

cut out of it, the cube being cut from the lower part, and the globe adjoining above.

PROB. 54.—The three lines drawn from the vertices of an equilateral triangle to a point within, are 10, 12, and 16. What are the sides of the triangle?