NOVA SCOTIA (66) ALMANACK.

4th-Given (the Lat. of Halifax as above and) the interval between the times at which, the Sun rises and is east, (=x) to find his Declination.

QUESTIONS BY H. McI.

1 .- A man brought a rectangular piece of ground, the compass 100' poles, he is to pay I dollar for each pole in length, and 3 dollars for each rod in breadth. Required the length, and breadth, so that the quantity of land may be had at the cheapest rate possible. 2.—How far must a ship sail on a S. W by S. course from a port

in Lat. 38° 15 N. until her Lat. and difference of Longitude become equal.

3.-An Orifice being made in a cask filled with claret and at the same moment a supply of water was made to keep the vessel constantly full. This vessel contained 100 gallons, and the hole discharged one gallon of the mixture every 10 seconds. Suppose the liquors to be always equally diffused throughout the vessel, how much wine remained in the same one hour after the hole was made.

> Solution of Problems for 1838. By J. OWENS, Royal Sappers and Miners,

No. 1 .- Let x = greatest part and -= least. 10

Then xt ---10. By Hypothesis 10 $10 x \dagger x = 100$ By Multiplication. Hence 11 x = 100; therefore

100 1

= 9 - = greatest part 11 11 x 1 100 100 10 And -- nof --, the east part. 11

10

10

Answer

Solution by H. Mclver, jr.

32= 9 x .07958 = .71622 = Area of Base,

· 110

71622 x 60 the length given 42.9732 or 43 = solid content of log,

11

Then say, as 24 inches the thickness of plank including the allowance for saw, is to 43 feet the solid content of log-So is 12 inches to 2291 the No. of feet required, Or thus,

As 21 in. : 43 s. feet :: 12 in. : 2295 the No. of feet required.

PROBLEMS No. 1. FOR YOUNG MECHANICS.

Solution by Joseph Owens, Royal Sappers and Miners.

The weight applied to the beam will be to the relative weight sustained. by each supporter, in a direct proportion; As the whole length of the beam is to the distance between the point to which the weight is applied; and the opposite supporter-thus;

	× 1	feet	feet			Ton		Ton		Cwt.	
	As	20	:	4	:	:	8	:	1	12	
		20		16	:		8	:	6	8	
Again,	88	20	:	1		:	8		0	3	
		20	:	19	:	:	3	:	2	17	
en by con	nect	ingt	he	two	ext	re	mere	sul	s toret	her, we shall	he

Th ave 1 ton 12 cwt plun 2 ton 17 cut = 4 ton 9 cwt = weight borne by one supporter.

380 15 251 x 100 = 3rd- 90 1bs 20 x 4th- 24 x 1 water. A side of any plied by half th pressure equal

Again-By c

Ansi

plus 3 cwt =

No 1-4 5 5 5

2nd. By the the rectangle,

Let ABC board or pla tions which I begin at from a to b. f d, d to e, e t now two sect them so that and a on A wil required.Dem the nature of p D be a multip will be a like and when thi problem may the foregoing easy, howeve that when C ple of D G th possible.

Joseph Owe section may b small. The w pearance in th nack-Ep