

Exam 1 solutions

1 & 2 $v = \frac{\omega}{k} = \frac{300}{2} = 100 \frac{m}{s} = 1 \times 10^8 \text{ m/s}$

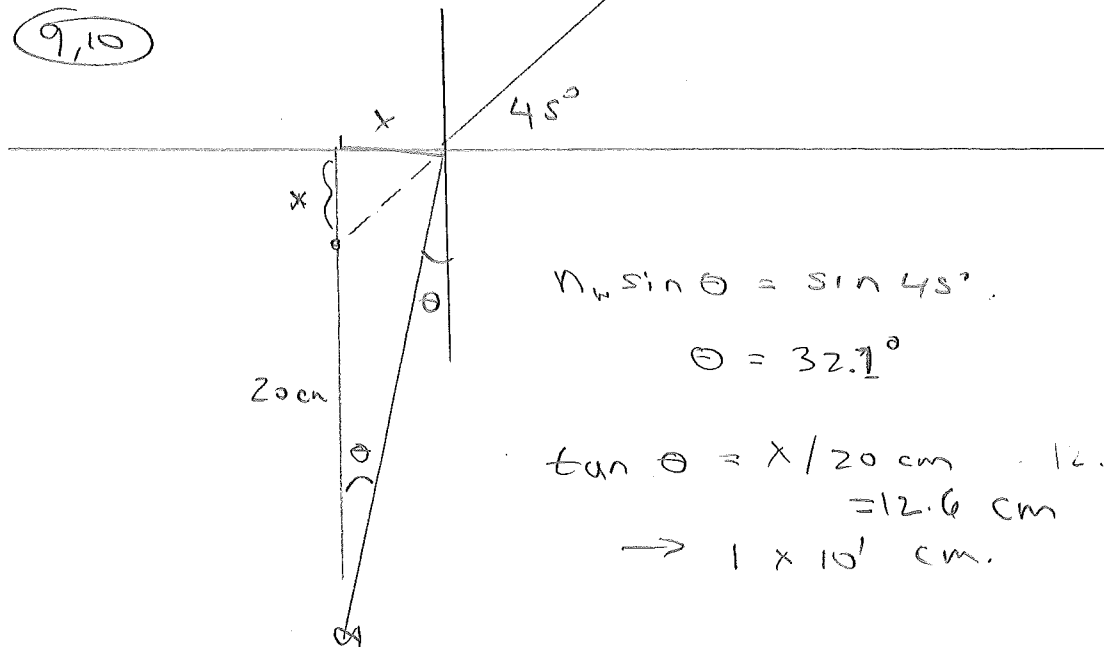
3 & 4 $n = c/v = 3$

5 & 6 $f = \omega/2\pi = 47.7 \text{ MHz} =$

7 h radio

8 a + x

9, 10

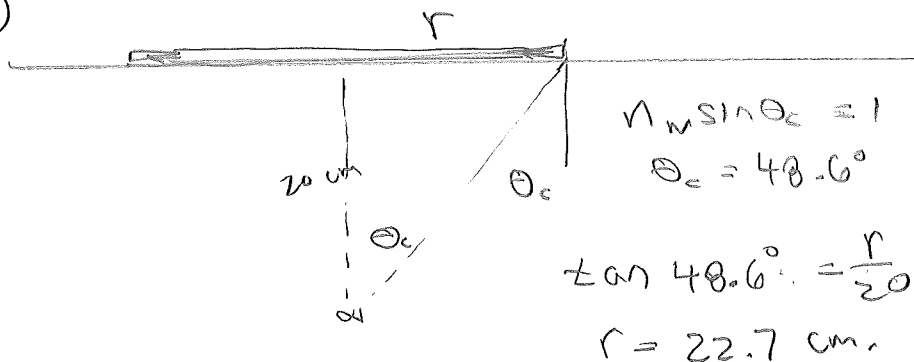


$n_w \sin \theta = \sin 45^\circ$

$\theta = 32.1^\circ$

$\tan \theta = x / 20 \text{ cm} = 12.6$
 $\rightarrow 1 \times 10^1 \text{ cm}$

11, 12



$n_w \sin \theta_c = 1$

$\theta_c = 48.6^\circ$

$\tan 48.6^\circ = \frac{r}{20}$

$r = 22.7 \text{ cm}$

	A	B	C	D	E	F	G	H	I	J
1.	0	2	3	4	5	6	7	8	9	0
2.	0	1	2	3	4	5	6	7	8	9
3.	0	1	2	3	4	5	6	7	8	9
4.	0	1	2	3	4	5	6	7	8	9
5.	0	1	2	3	4	5	6	7	8	9
6.	0	1	2	3	4	5	6	7	8	9
7.	0	1	2	3	4	5	6	7	8	9
8.	0	1	2	3	4	5	6	7	8	9
9.	0	2	3	4	5	6	7	8	9	0
10.	0	2	3	4	5	6	7	8	9	0
11.	0	1	2	3	4	5	6	7	8	9
12.	0	2	3	4	5	6	7	8	9	0
13.	0	2	3	4	5	6	7	8	9	0
14.	0	1	2	3	4	5	6	7	8	9
15.	0	1	2	3	4	5	6	7	8	9
16.	0	1	2	3	4	5	6	7	8	9
17.	0	1	2	3	4	5	6	7	8	9
18.	0	1	2	3	4	5	6	7	8	9
19.	0	1	2	3	4	5	6	7	8	9
20.	0	1	2	3	4	5	6	7	8	9

13,14

