Answers

PHYSICS 11

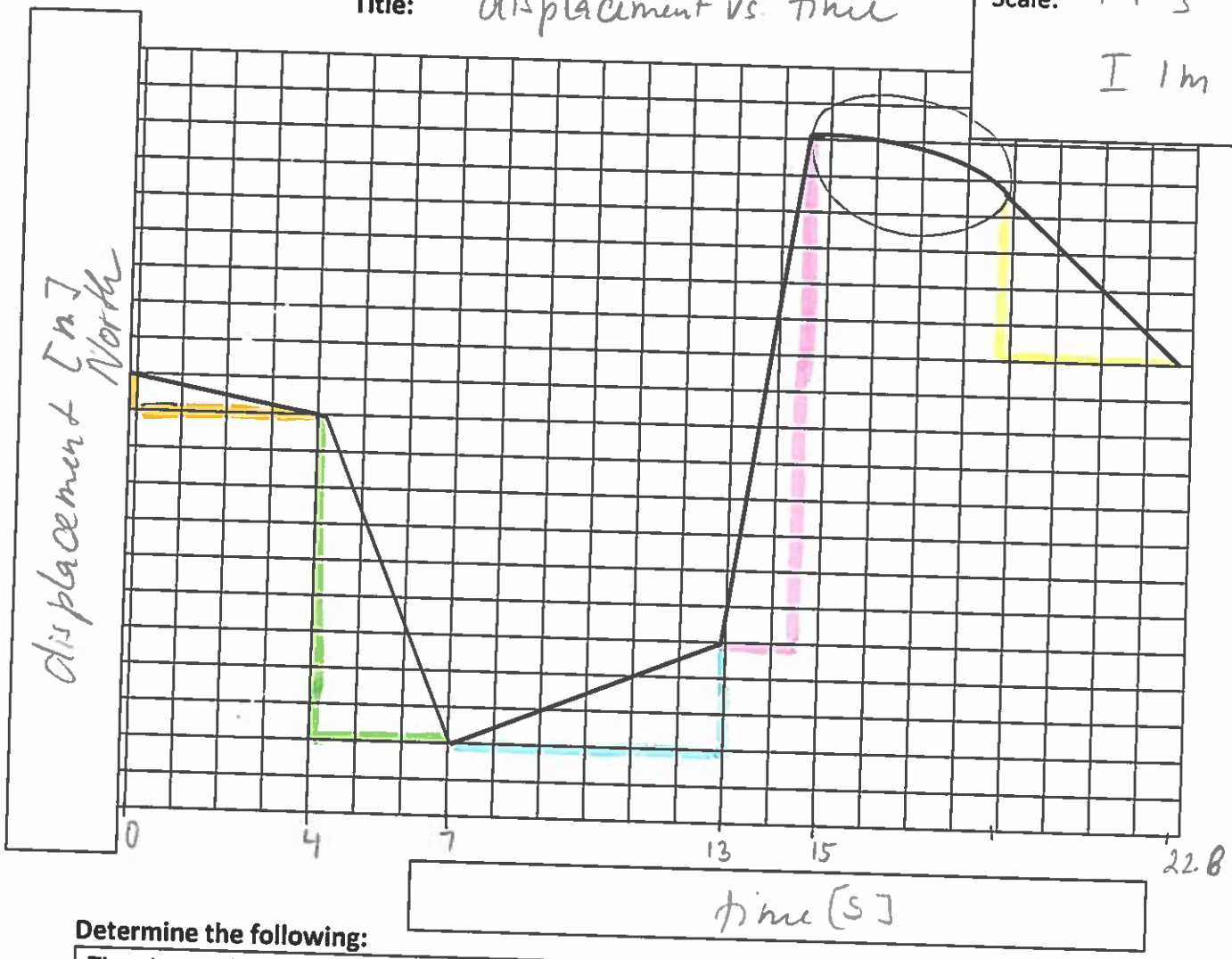
DETERMINING VELOCITY FROM A DISPLCEMENT TIME GRAPH
UNIFORM AND NON-UNIFORM MOTION

A:

Title: displacement vs time

Scale: H 1 s

I 1 m



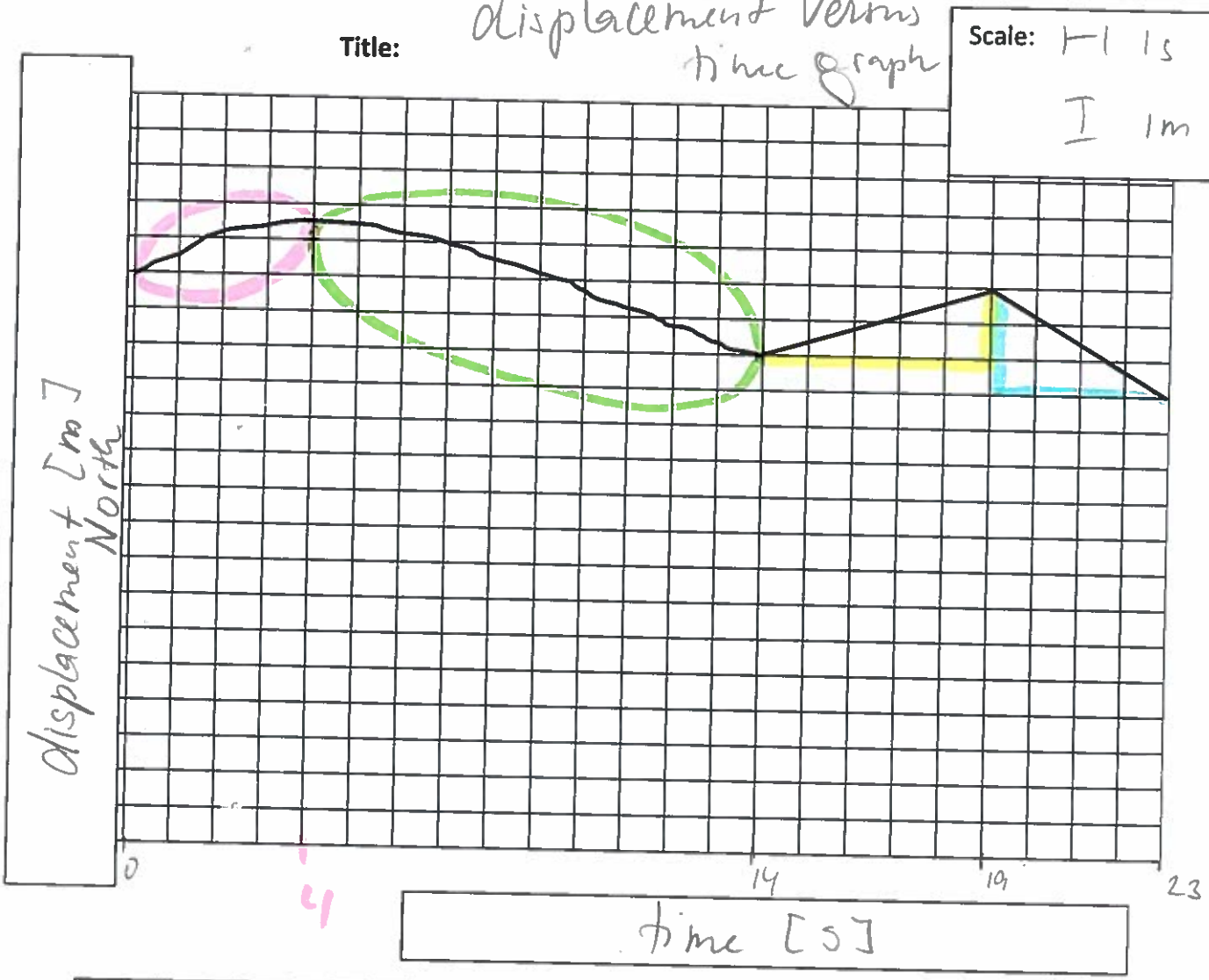
Determine the following:

Time intervals of constant velocity	Velocity
$t = [0, 4]$ s	-0.25 m/s [N] $= 0.25$ m/s [S]
$t = (4, 7]$ s	$-9/3 = -3$ m/s [N] $= 3$ m/s [S]
$t = (7, 13]$ s	$+6/3 = 2$ m/s [N]
$t = (13, 14.5]$ s	$14/1.5 \doteq 9.3$ m/s [N]
$t = (18.8, 22.8]$ s	$-4.3/3.8$ m/s [N] $= -1.1$ m/s [N] $= 1.1$ m/s [S]
Time intervals of accelerated motion	**Velocity**
$t = (14.5, 18.5]$ s ○	⊗ increasing

⊗ ⟷ from shallow slope to steep slope

B:

Title: displacement versus time graph

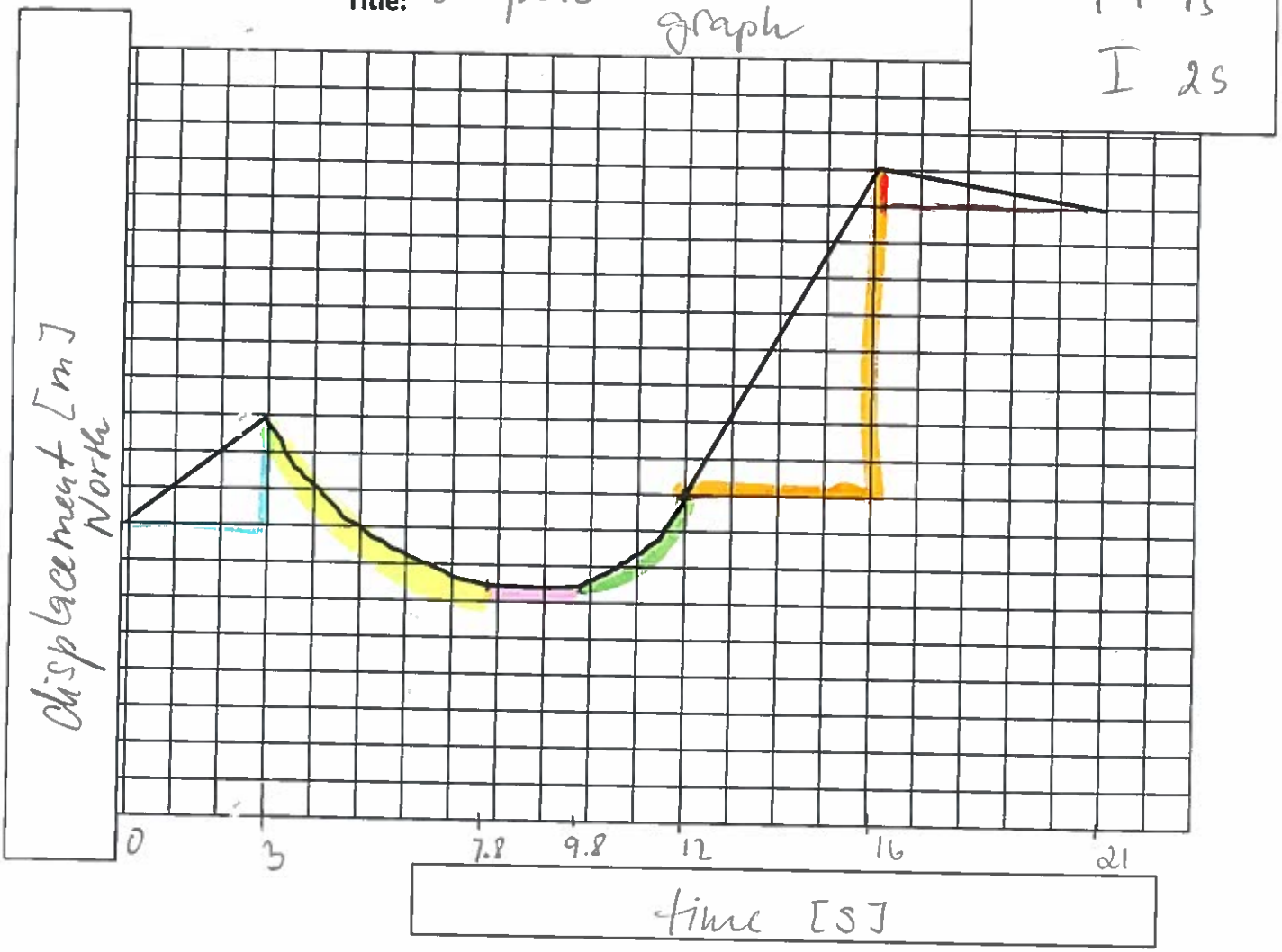


Time intervals of constant velocity	Velocity
$t = (14, 19]$ s	$2/5$ m/s [N] $= 0.4$ m/s [N]
$t = [19, 23]$ s	$-3/4$ m/s [N] $= 0.75$ m/s [S]
Time intervals of accelerated motion	**Velocity**
$t = [0, 4]$ s	decreasing
$t = [4, 14]$	increasing

C:

Title: displacement vs. time graph

Scale: ⊢1 1s
I 2s

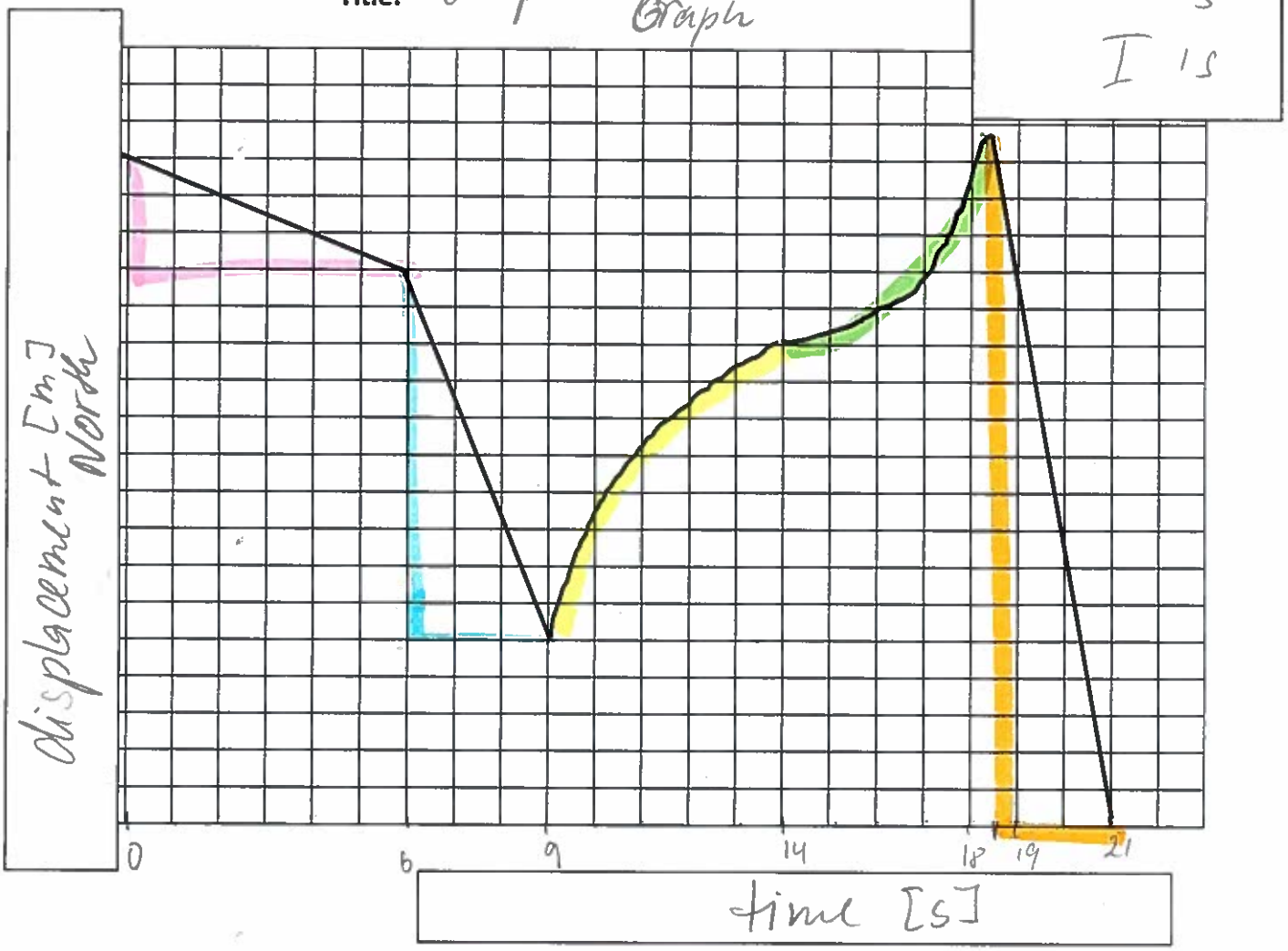


Time intervals of constant velocity	Velocity
$t = [0, 3]$ s	1 m/s [N]
$t = [7.8, 9.8]$ s	0 m/s [N]
$t = (12, 16]$ s	$9/4$ m/s [N] = 2.25 m/s [N]
$t = (16, 21]$ s	$-1/5 = -0.2$ m/s [N] $= 0.2$ m/s [S]
Time interval of accelerated motion	**Velocity**
$t = (3, 7.8]$ s	decreasing
$t = (9.3, 12]$ s	increasing

D:

Title: displacement vs. time Graph

Scale: H 1s
I 1s



Time intervals of constant velocity	Velocity
$t = [0, 6]$ s	$-3/6$ m/s [N] $= -0.5$ m/s [N]
$t = (6, 9]$ s	$-10/3$ m/s [N] $\doteq -3.\bar{3}$ m/s [N]
$t = (18.5, 21]$ s	$-18.7/2.5$ m/s [N] $\doteq -7.5$ m/s [N]
Time intervals of accelerated motion	**Velocity**
$t = (9, 14]$ s	decreasing
$t = (14, 18.5]$ s	increasing

$= 0.5$ m/s [S
$= 3.\bar{3}$ m/s [S
$= 7.5$ m/s [S