Name: _____ **M. Puranen - Science 20F** Date _____

Work Sheets following Lesson 1 and lesson 2

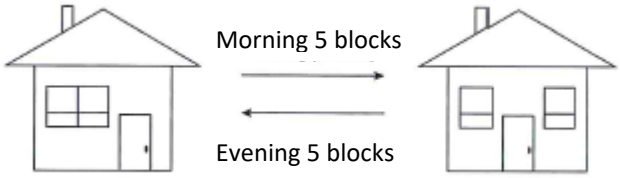
/20

Assignement 1 Position and Displacement

1. What does “Distance” refer to? (Not sure, -> Check your notes) (1)

2. What does “Displacement” refer to? (Not sure, -> Check your notes) (1)

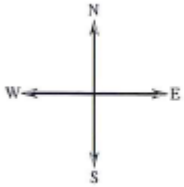
3. Calculate the distance traveled and the displacement of a person walking to his friend’s house and back. (2)



Distance traveled =
Displacement =

4. If you traveled in a car 10 blocks towards the east then turned around and drove back 5 blocks to the west, what is your displacement? (1)

Displacement =



5. If you traveled in a car 7 blocks towards the east then turned around and drove 10 blocks towards the west, what is your displacement? (1)

Displacement =

/6

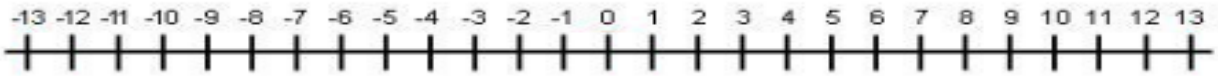
6. Calculate the displacement of the 4 objects (car, bicycle, pedestrian, skateboarder)

Practice with Displacement (4)

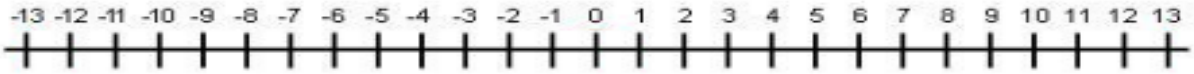
	Car	Bicycle	Pedestrian	Skateboarder
$\mathbf{d_1}$	+5m	-3m	+3m	+13m
$\mathbf{d_2}$	+13m	+12m	+5m	-2m

1. Mark the initial position of each object ($\vec{d}_1$ = the starting position)
2. Mark the final position of each object ($\vec{d}_2$ = the ending position)
3. Calculate the displacement of each object ($\vec{\Delta d}$ = change in position)
4. Remember to use the equation: $\vec{\Delta d} = \vec{d}_2 - \vec{d}_1$

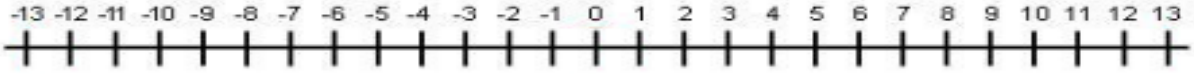
Car



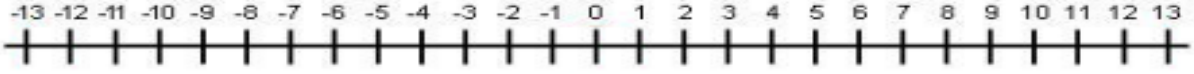
Bicycle



Pedestrian



Skateboarder



/4

7. Two taxis are traveling along Pembina Highway in opposite directions. (3)
   Taxi A changes its position from +5 to +12 during the same time as
   Taxi B moves from +7 to +2.
   a) Draw a diagram to show the initial and final positions of each taxi.
   b) Calculate the displacement of each taxi.
   c) Describe the movement speed of both taxis. Which vehicle is moving faster?

Practice with Time Intervals

8. Identify whether the following statements are examples of "time intervals" or an "instance of time" (4)
   a) A flight from Winnipeg to Calgary takes 2 hours and 15 minutes.

   b) You arrive at school at 8:55 a.m.

   c) The bus leaves for the field trip at 9:05 a.m.

   d) The hockey game started at 6:00 p.m. and didn't end until 9:35 p.m.

9. Use the equation for time intervals to solve the following questions. (3)
   Remember to use the equation: $\Delta t = t_2 - t_1$
   a) A plane takes off from Winnipeg at 7:30 a.m. and lands in Toronto at 10:00 a.m. How long was the flight in hours?

   b) You left your house at 6:50 a.m. in the morning and arrived at the school for sports practice 22 minutes later. At what time did you arrive at school?

   c) You start running around the track at school at 12:12 p.m. and you finish running 27 minutes later. At what time did you finish your run and head back in for class?

/10