

Physics20

UNIT 1- KINEMATICS

ASSIGNMENT 3 due: Monday September 22 P2

1. What term best describes vectors that lie along the same straight line?
2. What term best describes the sum of a series of vectors?
3. A fitness coach devises a race where participants must run a series of sprints: 15.0 m [forward], 5.0 m [backward], 30.0 m [forward], 10.0 m [backward], 45.0 m [forward], 15.0 m [backward], 60.0 m [forward], and 20.0 m [backward].
 - a. What is the total distance covered in this race?
 - b. What is the total displacement?
4. How should collinear vectors in the same direction be added?
5. The force exerted on a rope pulling a wagon is 50.0 N [forward]. The rope is 30.0° above the horizontal. Find the force that pulls the wagon over the ground.
- 6 a. Ariel rides an escalator to the upper level of West Edmonton Mall. The escalator moves at a velocity of 1.80 ms^{-1} at an angle of 38.0° to the horizontal. What is the horizontal component of Ariel's motion?

- 6 b. If the upper level of the mall is 4.20 m above the lower level, how long does it take Ariel to reach the top level?
7. A dog runs 18.0 m [29.0° E of N]. What was the north component of the dog's displacement?
8. A woman walking the edge of a garden plot walks 9.0 m east, then 3.5 m north. What is the woman's displacement?
9. A remote control airplane flies at 6.80 ms^{-1} [52.0° W of N]. What is the west component of the airplane's velocity?