

Physics 2204

Relative Motion Review Game Questions

1. Car A travels north at 60 km/h. Car B travels south at 70 km/h. What is the speed of car A relative to car B?
2. Car A travels north at 60 km/h. Car B travels south at 70 km/h. What is the speed of car B relative to car A?
3. Car A travels north at 60 km/h. Car B travels south at 70 km/h. What is the speed of car B relative to a person standing on the side of the road?
4. Car A travels north at 60 km/h. Car B travels south at 70 km/h. What is the speed of car A relative to a person standing on the side of the road?
5. Car A travels north at 60 km/h. Car B travels north at 70 km/h. What is the speed of car A relative to car B?
6. Car A travels north at 60 km/h. Car B travels north at 70 km/h. What is the speed of car B relative to car A?
7. Car A travels north at 60 km/h. Car B travels north at 70 km/h. What is the speed of car B relative to a person standing on the side of the road?
8. Car A travels north at 60 km/h. Car B travels north at 70 km/h. What is the speed of car A relative to a person standing on the side of the road?
9. An ant moves 2.0 cm to the right on a log. The log is pushed 5.0 cm to the right. What is the displacement of the ant with respect to the ground?
10. An ant moves 2.0 cm to the right on a log. The log is pushed 5.0 cm to the right. What is the displacement of the ant with respect to the log?
11. An ant moves 2.0 cm to the right on a log. The log is pushed 5.0 cm to the left. What is the displacement of the ant with respect to the ground?
12. An ant moves 2.0 cm to the left on a log. The log is pushed 5.0 cm to the right. What is the displacement of the ant with respect to the ground?
13. An ant moves 2.0 cm to the east on a log. The log is pushed 5.0 cm north. What is the displacement of the ant with respect to the ground?
14. A boat heads at 15 m/s (N) in a current of 5.0 m/s (E). What is the velocity of the boat with respect to the ground?

8 # 2W

15. A boat that can travel at 65 m/s in still water wants to end up directly north of its starting point. In what direction should the boat head if the river current is 5.0 m/s (W)?
16. A boat that can travel at 65 m/s in still water wants to end up directly north of its starting point. In what direction should the boat head if the river current is 5.0 m/s (E)?
17. Mary runs at 8.0 km/h and chases John who runs at 5.0 km/h. If John has a head start of 1.5 km, how long will it take Mary to catch John?
18. A plane travelling at 350 km/h (N) heads into a wind blowing at 9.0 km/h (S). What is the velocity of the plane relative to the ground?
19. A plane travelling at 350 km/h (S) heads into a wind blowing at 9.0 km/h (N). What is the velocity of the plane relative to the ground?
20. A plane travelling at 350 km/h (S) heads into a wind blowing at 9.0 km/h (N). How long does it take the plane to travel 150 km?
21. A plane travelling at 350 km/h (S) travels with a wind blowing at 9.0 km/h (S). How long does it take the plane to travel 150 km?
22. What do we call a place from which motion is observed?
23. Ed is driving down the Trans Canada Highway at 115 km/h [E] and spots Jill up ahead. Jill is traveling 105 km/h [E]. What is Jill's velocity relative to Ed?
24. Ed is driving down the Trans Canada Highway at 115 km/h [E] and spots Jill up ahead. Jill is traveling 105 km/h [E]. What is Ed's velocity relative to Jill?
25. A bird heading north has an air speed of 15.0 km/h. The wind is blowing south at 11.0 km/h. What is the velocity of the bird with respect to the ground?
26. Captain Murphy heads due north from Nova Scotia to Newfoundland. A strong current however pulls the ship slightly east. The velocity of the ship relative to the shore is 18.2 m/s E of N. If the ship can travel 18.0 m/s in calm seas, what is the velocity of the current relative to the ground?

Physics 2204
Relative Motion Review

1. What is the speed of car A with respect to car B if car A is travelling 55 km/h (N) and car B is travelling 61 km/h (S)?
2. A boat can travel at 12 km/h in still water. If there is a current of 2.0 km/h downstream, what is the velocity of the boat with respect to Earth if it travels downstream?
3. A dog running at 5.0 km/h is chasing a cat running at 3.0 km/h and is 0.75 km ahead of the dog. How long will it take the dog to catch the cat?
4. A bird heading north has an air speed of 15.0 km/h. The wind is blowing south at 11.0 km/h. What is the velocity of the bird with respect to the ground?
5. A plane is travelling with an air velocity of 370 km/h (S) straight into a wind having a velocity of 30.0 km/h (N) relative to the ground. How long will it take the plane to travel 170 km (S)?
6. A plane that has a speed relative to the air of 720 km/h flies due north in a wind that is blowing at 45 km/h (E). What is the velocity of the plane with respect to the ground?
7. A plane that has a speed relative to the air of 720 km/h wants to fly due north in a wind that is blowing at 37 km/h (W). In what direction should the plane head to end up at a position due north of its starting point?
8. A boat that can travel at 4.5 km/h in still water is travelling on a river having a current of 1.5 km/h (E). Find the time it takes for the boat to travel 3.0 km (E) relative to the shore.
9. A boat that can travel at 9.0 km/h in still water heads due north in a river having a current to the west. If the velocity of the boat with respect to the ground is 9.2 km/h, what is the current?

PT# 2W

