

Vectors & Projectiles Practice Written Questions

Name: \_\_\_\_\_ per \_\_\_\_\_

37. Briefly distinguish between vectors and scalars, giving examples of each.

38. Use the parallelogram method to find the resultant of a 12-unit vector and a 16-unit vector that are at angles of 30 degrees from each other.

39. Draw a 17 cm vector at an angle of 30 degrees from the x-axis. Find the x- and y- components.

40. A plane flies west at 230 km/h. At the same time, there is wind blowing 80 km/h South. Use both a scaled diagram and the Pythagorean Theorem to find the resultant velocity of the plane.

41. A motorboat is driven across a river at 3.0 km/h at right angles to a current that is flowing at 10.0 km/h. What is the resulting speed of the motorboat?

42. A ball is thrown horizontally from the top of a tall cliff. Neglecting air drag, how high is the cliff if it takes 2.0 seconds to fall?

43. Kyle throws a ball horizontally from the top of a building that is 5.0 m high. He hopes the ball will reach a swimming pool that is at the bottom of the building, 12.0 m horizontally from the edge the building. If the ball is to reach the pool, with what initial speed must Kyle throw it with?

44. A package falls out of a helicopter that is traveling horizontally at 70 m/s. It falls into the water below 8.0 seconds later. Assuming no air resistance, what is the horizontal distance it travels while falling?