

Name : _____

Joint and Combined Variation

Sheet 1

Round your answer to two decimal places.

- 1) Seacausus stadium has a seating capacity for 25,000 spectators. The stadium has 25 exits and can be vacated in 20 minutes. The time taken to exit the stadium varies directly with the number of spectators and inversely with the number of exits. Determine the time taken for 21,000 spectators to vacate the stadium, if only 15 exits are functional.
- _____

- 2) A pennant flag that is 2 inches high with a base of 1.5 inches has an area of 1.5 square inches. The area of a triangle varies directly with the height and inversely with the base. Determine the area of a flag whose base measures 2 inches and whose height is 3 inches.
- _____

- 3) An empty can of rock salt is at a pressure of 360 kPa at 24° C. Pressure varies directly with the volume and inversely with the temperature of the gas. Determine the pressure of the gas at a pressure of 360 kPa and a volume of 1.5 m³ at 24° C.
- _____

- 4) A train from Newark to New York covers a distance of 270 miles in 6.2 hours. The distance covered varies directly with the time taken and inversely with the speed. Determine the time taken for a train to cover a distance of 248 miles if it travels at a speed of 40 miles per hour.
- _____

- 5) Ralph invested \$18,500 in the share market for a period of 2 years and earned an interest of \$1,850 at the rate of 5%. The simple interest varies jointly with the principal, rate of interest, and the period of investment. Find the amount invested, if a person received an interest of \$3,960 for 3 years at the rate of 6%.
- _____

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Joint and Combined Variation

Round your answer to two decimal places.

- 1) Seacausus stadium has a seating capacity for 25,000 spectators. The stadium has 25 exits and can be vacated in 20 minutes. The time taken to exit the stadium varies directly with the number of spectators and inversely with the number of exits. Determine the time taken for 21,000 spectators to vacate the stadium, if only 15 exits are functional.

28 minutes

- 2) A pennant flag that is 2 inches high with a base of 1.5 inches has an area of 1.5 square inches. The area of a triangle varies directly with the height and inversely with the base. Determine the area of a flag whose base measures 2 inches and whose height is 3 inches.

2.5 square inches

- 3) An empty can of rock salt is at 24° C. Pressure varies directly with the volume and inversely with the temperature of the gas. Determine the pressure of the gas at a pressure of 360 kPa and a volume of 1.5 liters, if the temperature is 30° C.

50° C

- 4) A train from Newark to New York City covers a distance of 270 miles in 6.2 hours. The speed of the train varies directly with the distance covered and inversely with the time taken. Determine the speed of the train if it covers a distance of 248 miles in 6.2 hours.

40 miles per hour

- 5) Ralph invested \$18,500 in the share market for a period of 2 years and earned an interest of \$1,850 at the rate of 5%. The simple interest varies jointly with the principal, rate of interest, and the period of investment. Find the amount invested, if a person received an interest of \$3,960 for 3 years at the rate of 6%.

\$22,000

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