

Name : _____

Joint and Combined Variation

Sheet 2

Round your answer to two decimal places.

- 1) The volume of a cylinder varies jointly with its height and the square of radius. A cylindrical herb shaker that can hold up to 7.85 cubic inches of herb mix, measures 2.5 inches in height and has a radius of 1 inch. Find the volume of a herb shaker that is 3 inches high and has a radius of 1.5 inches.
- _____

- 2) Judy installs a 120-volt lamp that has a resistance of 20 ohms and a 6-ampere fuse to control excessive current. A wire with a resistance of 30 ohms is connected in series with the lamp. The current through the wire varies directly with voltage (V) and inversely with resistance (R). Find the current through the wire. A 90-volt lamp that has a resistance of 30 ohms is connected in series with the wire. Find the current through the wire.
- _____

- 3) In a home furniture store, the time taken by the men to assemble furniture varies inversely with the number of employees. How long will it take 10 men to assemble furniture if it takes 20 men 12 hours to assemble the same furniture?
- _____

- 4) The kinetic energy of an object varies directly with the mass of the object and the square of its velocity. A boy weighing 70 pounds has a kinetic energy of 560 Joules. Determine the kinetic energy of a boy weighing 140 pounds if his velocity is 10 meter per second.
- _____

- 5) Oliver is 5 feet tall and weighs 137.5 pounds. His Body mass index (BMI) is 26.84. The BMI of a person varies directly with one's weight and inversely with the square of one's height. Determine the BMI of a person who is 6 feet tall and weighs 150 pounds.
- _____

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Joint and Combined Variation

Round your answer to two decimal places.

- 1) The volume of a cylinder varies jointly with its height and the square of radius. A cylindrical herb shaker that can hold up to 7.85 cubic inches of herb mix, measures 2.5 inches in height and has a radius of 1 inch. Find the volume of a herb shaker that is 3 inches high and has a radius of 1.5 inches.

21.2 cubic inches

- 2) Judy installs a 120-volt lamp that has a resistance of 20 ohms and a 6-ampere fuse to control excessive current. A wire with a resistance of 10 ohms is connected in series with the lamp. The current in the wire varies directly with voltage (V) and inversely with resistance (R). Find the current in the wire. A 90-volt lamp that has a resistance 30 ohms is connected in series with the wire.

3 amperes

- 3) In a home furniture store, the time taken by the men to assemble furniture varies inversely with the number of employees. How long will it take 10 men to assemble furniture if it takes 5 hours for 20 men to assemble the same furniture?

5 hours

- 4) The kinetic energy of an object varies directly with the mass of the object and the square of its velocity. A boy weighing 70 pounds has a kinetic energy of 560 Joules. Determine the kinetic energy of a boy weighing 140 pounds moving at a velocity of 10 meter per second.

750 Joules

- 5) Oliver is 5 feet tall and weighs 137.5 pounds. His Body mass index (BMI) is 26.84. The BMI of a person varies directly with one's weight and inversely with the square of one's height. Determine the BMI of a person who is 6 feet tall and weighs 150 pounds.

BMI = 20.33

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