

Exam Prep – Unit 1

The cost of steel rods is jointly proportional to their length and diameter. If a 10-centimeter long tube with a 1-centimeter diameter costs \$5.80, then what is the cost of a 25-centimeter long tube with a 2-centimeter diameter?

- A \$23.00
- B \$25.00
- C \$29.00
- D \$30.00

M varies directly with n and inversely with p , and $M = 10$ when $n = 4$ and $p = 8$. What is the value of M when $n = 20$ and $p = 40$?

- A 10
- B 2.5
- C 20
- D 0.5

The time, t , in hours, that it takes x people to plant n trees varies directly with the number of trees, and inversely with the number of people. Suppose 6 people can plant 12 trees in 3 hours. How many people are needed to plant 28 trees in 5 hours and 15 minutes?

- A 6
- B 7
- C 8
- D 9

The volume, V , of a certain gas varies inversely with the amount of pressure, P , placed on it. The volume of this gas is 175 cm^3 when 3.2 kg/cm^2 of pressure is placed on it. What amount of pressure must be placed on 400 cm^3 of this gas?

- A 1.31 kg/cm^2
- B 1.40 kg/cm^2
- C 2.86 kg/cm^2
- D 7.31 kg/cm^2

The force, F , acting on a charged object varies inversely to the square of its distance, r , from another charged object. When the two objects are 0.64 meter apart, the force acting on them is 8.2 Newtons. **Approximately** how much force would the object feel if it is at a distance of 0.77 meter from the other object?

- A 1.7 Newtons
- B 5.7 Newtons
- C 11.9 Newtons
- D 12.9 Newtons