

Unit 12.2 Ratios and Proportions

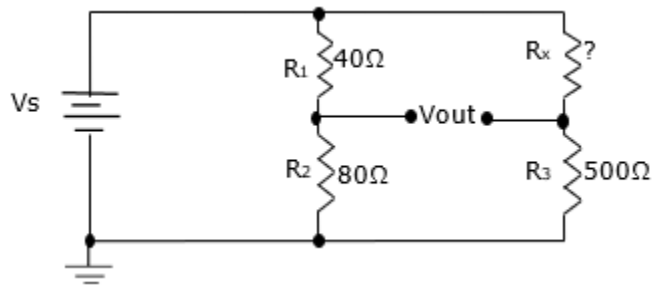
1. While working in a repair facility for Ashcroft pressure gages, you find 6 defective gages out of a sample of 32. If the ratio is consistent, how many defective gages do you expect to find in a batch of 1600 gages?
2. The sum of two numbers is 117. The ratio between the two numbers is 8 to 5. Find the two numbers
3. The denominator of a fraction exceeds the numerator by 7. If the numerator is increased by 3 and the denominator is increased by 5, the resulting fraction is equal to $\frac{1}{2}$. Find the original fraction.
4. What number must be added to both the numerator and denominator of $\frac{16}{21}$ to make the resulting fraction equal to $\frac{5}{6}$?
5. Making a statistical analysis, Colter found 3 defective computers in a sample of 20 computers. If this ratio is consistent, how many defective computers does she expect to find in a batch of 2400 computers?

6. Transformers are a type of electrical device that can use the ratio of winding coils (turns, N) to step-up voltage or step-down voltage. The voltage on the primary coil is 40 V and the number of turns on the primary side is 150. If the number of turns on the secondary side is 300, what is the secondary voltage using the formula below?

$$\frac{V_P}{V_S} = \frac{N_P}{N_S}$$

7. A Wheatstone Bridge is a device that can be used to find unknown electrical resistance by balancing the ratio of the two legs. If $R_1 = 40 \Omega$, $R_2 = 80 \Omega$ and $R_3 = 500 \Omega$, what value of R_x would be needed to balance the bridge (using the formula below)?

$$\frac{R_X}{R_S} = \frac{R_1}{R_2}$$



8. An small inlet pipe can fill a pool in 9 hours. A large inlet pipe can fill the same pool in 3 hours. If you use both at the same time, how long will it take to fill the pool?

9. You have two gears that are part of an assembly. Gear A has 25 teeth and Gear B has 75 teeth, what would be the gear ratio in smallest terms?
10. You have 3 gears as part of an assembly. Gear A has 10 teeth, Gear B has 40 teeth and Gear C has 5 teeth. What is the ratio between A and B, B and C and A and C in smallest terms?
11. The ratio of fiction books to non-fiction books in Roxanne's library is 7 to 4. If Roxanne owns 182 fiction books, how many non fiction books does she own?
12. You have a transformer that has 8 turns on the primary side and 5 turns on the secondary side (8:5). If the source voltage is 240 V, find the voltage on the secondary side
13. If the ratio of red skittles to green skittles in a given bag is 2:3, how many red skittles are there if there are 45 green ones?