

Duplicate Ratios and Sub-Duplicate Ratios

(1) Duplicate ratio of $a : b$ is $a^2 : b^2$ (A ratio compounded itself.)

(2) Sub-duplicate ratio of $a:b$ is $\sqrt{a} : \sqrt{b}$.

Question 1: Find the duplicate ratio of $6 : 7$

Solution: Duplicate ratio is $(6)^2 : (7)^2$
 $= 36 : 49$

Question 2: Find the duplicate ratio of $\sqrt{3} : 3$

Solution: Duplicate ratio is $(\sqrt{3})^2 : 3^2$
 $= 3 : 9 = 1 : 3$

Question 3: Find the duplicate ratio of $2\sqrt{7} : 5$

Solution: Duplicate ratio is $(2\sqrt{7})^2 : 5^2$
 $= 28 : 25$

Question 4: Find the sub duplicate ratio of $36 : 100$

Solution: sub duplicate ratio is $6 : 10$

Question 5: Find the sub duplicate ratio of $7 : 144$

Solution: sub duplicate ratio is $\sqrt{7} : 12$