

PROBLEMS ON MIXING

- I.17 A 15 ounce mixture of water and alcohol is initially 20% alcohol. Twice, 5 ounces of alcohol are added, the solution is mixed, and 5 ounces of the mixture are poured off. How much alcohol will be in the final mixture (in ounces)? (a) 3 (b) 6 (c) $17\frac{4}{5}$ (d) 13 (e) $8\frac{1}{4}$
- III.21 To 50 ounces of a solution of equal parts water and acid, x ounces of water are added to yield a solution of 40 percent acid. The value of x is
(a) 20 (b) $15\frac{1}{2}$ (c) $25\frac{1}{2}$ (d) 10 (e) 15
- IV.14 Beginning with 100 ounces of 50% salt solution, 50 ounces of solution is removed and 50 ounces of plain water is then added. This is then repeated for a total of 10 times. The resulting solution is approximately what percent salt? (a) 5% (b) 1% (c) 50% (d) .05% (e) .01%
- V.10 To 100 ounces of a solution of equal parts of water and acid, x ounces of acid are added to yield a solution of 80% acid. Then y ounces of water are added to bring the solution to 40% acid. A formula relating x and y is
(a) $y = 80 + .4x$ (b) $y = 25 + 3x/2$ (c) $y = .4(100 + 1.8x)$ (d) $y = .8(100 + 1.4x)$ (e) $y = 140 + .8x$
- VI.5 A bottle contains x ounces of water. The addition of y ounces of acid then produces a 30% solution, and the further addition of z ounces of acid produces a 60% solution. The ratio $z/y =$
(a) $1/2$ (b) $2/3$ (c) $3/2$ (d) 2 (e) $5/2$
- VIII.12 If 20 ounces of 20% solution of alcohol in water is mixed with 10 ounces of 30% solution of alcohol in water, and then x ounces of the resulting mixture is combined with 10 ounces of 40% alcohol, then the final result is a mixture having 30% alcohol. The value of x in ounces is
(a) 12 (b) 15 (c) 18 (d) $81/5$ (e) $63/4$
- IX.26 Container A has 2 gallons of $r\%$ solution and container B has 2 gallons of $s\%$ solution. One gallon is taken from A and poured into B; one gallon is then taken from B and poured into A. The percent solution in A is then
(a) $(2r + s)/3$ (b) $(r + s)/2$ (c) $(3s + 2r)/5$
(d) $(3r + 2s)/5$ (e) $(5r + 6s)/11$
- X.15 Jar 1 has 10 pounds of 20% solution and jar 2 has 10 pounds of 50% solution. If x pounds is poured from jar 1 into jar 2 and then x pounds poured from jar 2 into jar 1, the resulting mixture in jar 1 is a 30% solution. Then $x =$ (a) $16/3$ (b) $21/4$ (c) $9/2$ (d) 5 (e) 7