Answer on Question #41128, Chemistry, Other

Question:

Mixture of 100 ml 0.1 M H3PO4 and 100 ml 0.1 M NaOH will be

Solution:

Components of mixture react:

$$H_3PO_4 + NaOH = NaH_2PO_4 + H_2O$$
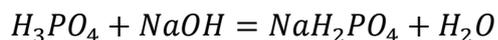
Amount of substance of resulting salt will be:

N(NaH$_2$PO$_4$) (mol) = N(NaOH) = 0.1*0.1 = 0.01;

Next we must found the volume of resulting solution. It consists of volume of both solutions and volume of yield water:

V(Resulting solution) (l) = V(H$_3$PO$_4$) + V(NaOH) + V(H$_2$O) = 0.1 + 0.1 + 0.01*18*0.001 = 0.20018;

Molarity of the resulting solution will be:

M(NaH$_2$PO$_4$) (mol/l) = 0.01/0.20018 = 0.05

Answer: 200.18 ml of 0.05 M NaH$_2$PO$_4$