Question 1

$P(black \vee tabby) = 12/50 + 11/50 =$ **23/50**

$P(white) =$ **5/50**

$P(!\,calico) = 50/50 - 15/50 =$ **35/50**

Question 2

$P(calico \wedge male) =$ **0.12**

$P((black \wedge male) \vee (white \wedge female) = 0.1 + 0.08 =$ **0.18**

$P(male \vee calico) = (0.1 + 0.12 + 0.06 + 0.02 + 0.12) + (0.12 + 0.18) - (0.12) =$ **0.6**

$P(female) = 0.14 + 0.02 + 0.16 + 0.08 + 0.18 =$ **0.58**

$P((tabby \vee white) \wedge female) = 0.16 + 0.08 =$ **0.24**

$P(gray \wedge\ !male) =$ **0.02**

Question 3

$P(male \mid gray \vee white) = \frac{0.12+0.02}{(0.12+0.02)+(0.02+0.08)} =$ **14/24**

$P(female \mid !\,black) = \frac{0.02+0.16+0.08+0.18}{1-(0.1+0.14)} =$ **44/76**

$P(gray \mid female) = \frac{0.02}{0.14+0.02+0.16+0.08+0.18} =$ **2/58**

Question 4

$P(friendly) = (0.2\ *\ 0.3) + (0.4\ *\ 0.7) = 0.34$

$P(calico \mid friendly) = 0.2\ *\ 0.3/0.34 =$ **.1764**