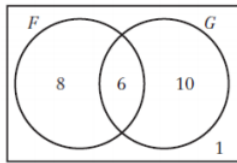


1 a



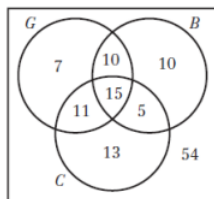
b i $P(F) = \frac{14}{25}$

ii $P(F \cap G) = \frac{6}{25}$

iii $P(\text{French but not German}) = \frac{8}{25}$

iv $P(\text{Neither French nor German}) = \frac{1}{25}$

2 a



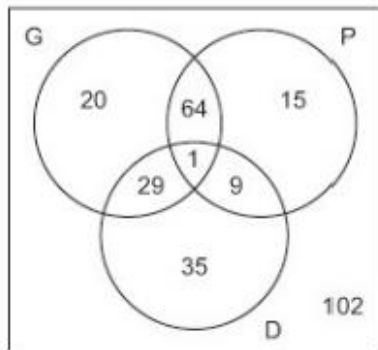
b i $P(\text{All three}) = \frac{15}{125} = \frac{3}{25}$

ii $P(\text{Beer but not cheesecake and not garlic bread}) = \frac{10}{125} = \frac{2}{25}$

iii $P(\text{Garlic bread and beer but not cheesecake}) = \frac{10}{125} = \frac{2}{25}$

iv $P(\text{None}) = \frac{54}{125}$

3 a



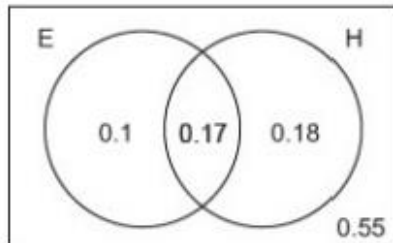
b i $P(\text{Plays piano}) = \frac{89}{275}$

ii $P(\text{At least 2}) = \frac{64 + 9 + 29 + 1}{275} = \frac{103}{275}$

iii $P(\text{Plays exactly one}) = \frac{20 + 15 + 35}{275} = \frac{14}{55}$

iv $P(\text{Plays none}) = \frac{102}{275}$

4

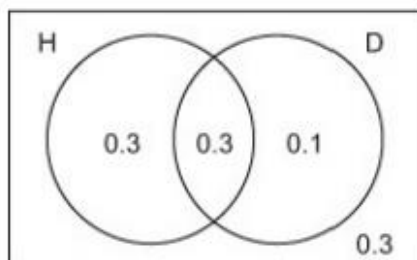


a $P(E \cap H) = P(E) + P(H) - P(E \cup H)$
 $= 0.27 + 0.35 - 0.45$
 $= 0.17$

b $P(\text{Blonde hair but not Blue eyes}) = 0.35 - 0.17 = 0.18$

c $P(\text{Neither}) = 1 - P(E \cup H) = 1 - 0.45 = 0.55$

5



$$\begin{aligned} \mathbf{5 \ a} \quad P(H \cap D) &= P(H) + P(D) - P(H \cup D) \\ &= 0.6 + 0.4 - 0.7 \\ &= 0.3 \end{aligned}$$

$$\mathbf{b} \quad P(\text{Hiya only}) = 0.6 - 0.3 = 0.3$$

$$\mathbf{6 \ a} \quad P(B) = x + 0.1 + 0.2 = 0.45$$

$$\text{So } x = 0.45 - 0.3 = 0.15.$$

$$\mathbf{b} \quad y = 1 - (0.35 + 0.15 + 0.1 + 0.2 + 0.05) = 1 - 0.85 = 0.15$$

$$\mathbf{7} \quad P(M) = 0.32 + p$$

$$P(P) = p + q + 0.07$$

$$\text{As } P(M) = P(P), 0.32 + p = p + q + 0.07.$$

$$\text{So, rearranging, } q = 0.32 - 0.07 = 0.25.$$

$$p = 1 - (0.32 + 0.25 + 0.07 + 0.13 + 0.1) = 0.13$$

$$p = 0.13, q = 0.25$$