(a)
P(Word = groot)
= P(Word = groot|Document = 1) + P(Word = groot|Document = 2) + P(Word = groot|Document = 3)
= 1/3 * 13 / (12+12+1+1+13) + 1/3 * 17 / (17+17+17) + 1/3 * 15 / (14+14+2+2+15)
= 0.3286

(b)
P(Document = 1 | Word = we)
= P(Document = 1,Word = we) / P(Word = we)
= 1/3 * 1 / (12+12+1+1+13) / (1/3 * 1 / (12+12+1+1+13) + 1/3 * 2 / (14+14+2+2+15))
= 0.376

(c)
P(Document = 2 | Word = am or Word = are)
= P(Document = 2,Word = am or Word = are) / P(Word = am or Word = are)
= 1/3 * 17 / (17+17+17) / (1/3 * (12+1) / (12+12+1+1+13) + 1/3 * 17 / (17+17+17) + 1/3 * (14+2) / (14+14+2+2+15))
= 0.3310

(d)
P(Word = groot)
= 1/6 * 13 / (12+12+1+1+13) + 1/3 * 17 / (17+17+17) + 1/2 * 15 / (14+14+2+2+15)
= 0.3262

(e)
P(Document = 1 | Word = we)
= P(Document = 1,Word = we) / P(Word = we)
= 1/6 * 1/39 / (1/6 * 1/39 + 1/2 * 2/47)
= 0.1673

(f)
P(Document = 2 | Word = am or Word = are)
= P(Document = 2,Word = am or Word = are) / P(Word = am or Word = are)
= 1/3 * 17 / (17+17+17) / (1/6 * 13/39 + 1/3 * 17/51 + 1/2 * 16/47)
= 0.3298