

Quiz 4 (Group) for Statistics 113
Statistics and Society—Spring 2000
Material Covered: Chapters 13,14,15 of notes and text
For: Friday, 10th March

Name 1 (please print): _____
last first

Name 2 (please print): _____
last first

Name 3 (please print): _____
last first

Name 4 (please print): _____
last first

Tickets are sampled at random, with replacement, from the following box of tickets.

1a	1b	1b	1b	2a	2a	2b	3b	3b
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There are, for instance, four tickets with a “1”, including “1a”, “1b”, “1b” and “1c”.

- (a) [1] The chance that one ticket, drawn from this box model, has an “3” is (circle closest one) $\frac{2}{9}$ / $\frac{3}{9}$ / $\frac{4}{9}$ / $\frac{5}{9}$ / $\frac{6}{9}$.
- (b) [1] The chance that one ticket, drawn from this box model, has a “1” or an “3” or an “a” is (circle closest one) $\frac{4}{9}$ / $\frac{5}{9}$ / $\frac{6}{9}$ / $\frac{7}{9}$ / $\frac{8}{9}$.
- (c) [1] The chance that one ticket, drawn from this box model, has a “b”, conditional on this ticket has an “1”, is (circle closest one) **45%** / **55%** / **65%** / **75%** / **85%**.
- (d) [1] The event, “choosing one ticket with a 2”, depends on the event, “choosing one ticket with a b”, because (circle closest one)
- (a) $\frac{1}{9} \neq \frac{3}{9} \times \frac{3}{9}$
- (b) $\frac{1}{9} \neq \frac{3}{9} \times \frac{4}{9}$
- (c) $\frac{1}{9} \neq \frac{3}{9} \times \frac{5}{9}$
- (d) $\frac{1}{9} \neq \frac{3}{9} \times \frac{6}{9}$
- (e) $\frac{1}{9} \neq \frac{3}{9} \times \frac{7}{9}$
- (e) [1] In six draws from this box model, the chance of choosing two “2”s, is (circle closest one)
- (a) $\frac{6!}{2!4!}(2/9)^4(7/9)^2$ (b) $\frac{6!}{2!4!}(2/9)^6(7/9)^4$ (c) $\frac{6!}{4!2!}(4/9)^2(2/9)^4$ (d) $\frac{6!}{2!4!}(2/9)^2(7/9)^4$ (e) $\frac{6!}{4!2!}(2/9)^2(7/9)^6$
- (f) [1] Explain what it means to say “order matters” when drawing the two tickets, “1a” and “1b”, from the box.

(a) [1] $\frac{2}{9}$

(b) [1] $\frac{8}{9}$

(c) [1] **75%**

(d) [1] **(d)**

(e) [1] **(d)**

(f) [1] In two draws from the box, the ticket “1a”, followed by “1b”, would be considered a different order than the ticket “1b”, followed by “1a” and so would be counted as two permutations, rather than one permutation.