MATH 4/50055
MTWR 8:50

Actuarial Mathematics I

Fall 2014
Dr. Kracht

Name: _____ Quiz Score: /20

Quiz 5: Monday, November 17, 2014

For each of the following:

- sketch a timeline with all (possible) payments, their discounts, and probabilities;
- give a formula (any); and
- *explain* what it represents in plain English. Your explanations should make the difference between the symbols clear.

1. $\ddot{a}_{\overline{n}|} = \frac{1-v^n}{d}$ = the present value of an annuity that pays \$1 per (annually) year at the beginning of each year for n payments.

annuity-due certain

2. $A_x = \sum_{k=0}^{\infty} v^{k+1} {}_k p_x \cdot q_{x+k}$ = expected present value of a single \$1 payment at the end of the year that a life aged x dies in

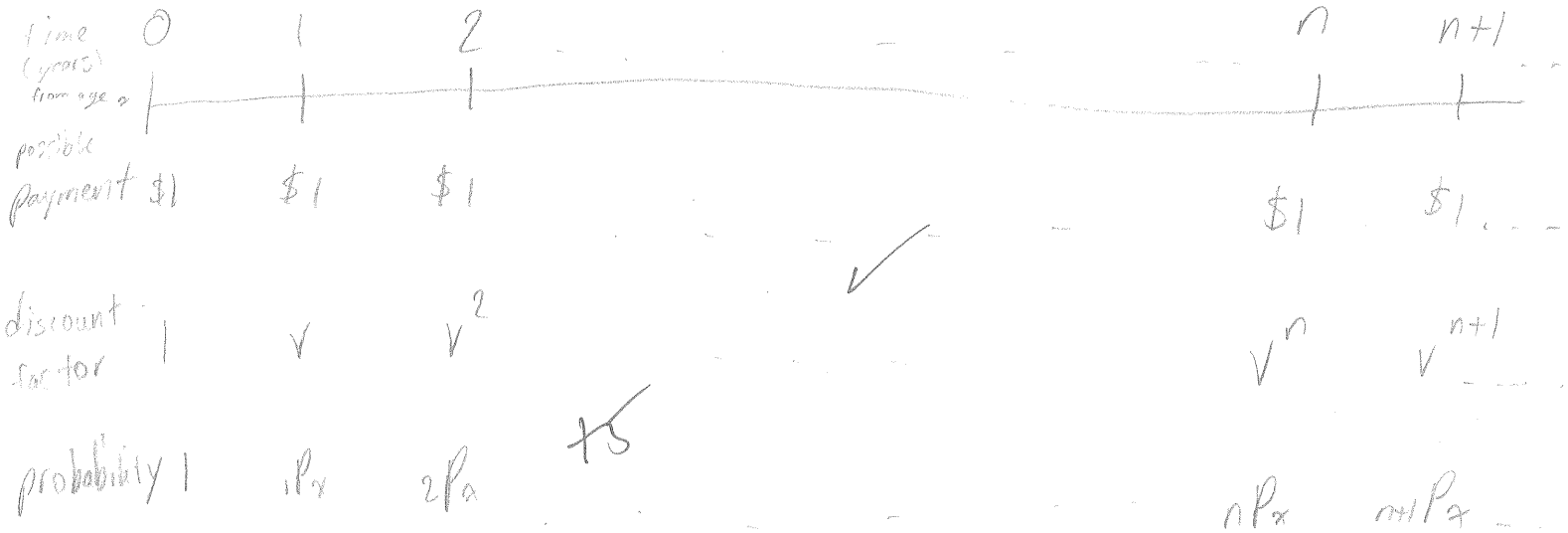
whole life

continued on the reverse

only get one payment, depending on the year that the life aged x dies in (if (x) dies in the year x+2.5, then the \$1 payment is made at the end of the year x+3)

another formula $\ddot{a}_x = \sum_{k=0}^{\infty} v^k \, {}_kp_x$ ✓

3. $\ddot{a}_x = \frac{1 - A_x}{d}$ = expected present value of an annuity that pays \$1 per year (annually), payable in advance (beginning of each year), until a life aged x dies



4. $\ddot{a}_{x:\overline{n}|} = \frac{1 - A_{x:\overline{n}|}}{d}$ = expected present value of an annuity that pays \$1 per year (annually), payable in advance, until a life aged x dies or the term ends (whichever comes first)

another formula $\ddot{a}_{x:\overline{n}|} = \sum_{k=0}^{n-1} v^k \, {}_kp_x$