

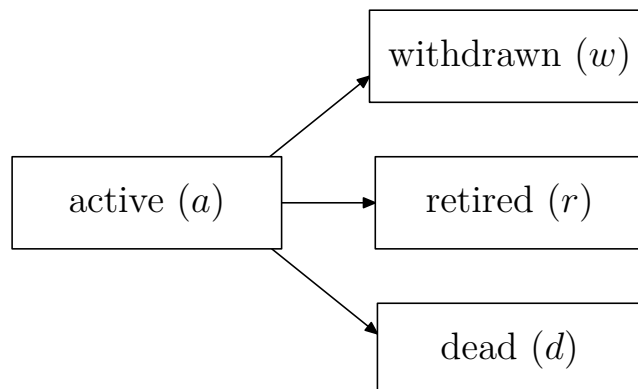
Michigan State University  
STT 456 - Actuarial Models II  
Class Test 1  
Friday, 27 February 2015  
BONUS: 20 points

Please write your name at the space provided:

Name: \_\_\_\_\_

- You can earn a total of up to 20 points, to be added to your score in Class Test 1, by answering this one question.
- Please provide details of your workings in the appropriate spaces provided; partial points will be granted.
- Please write legibly. Use the back page for more spaces.
- Only identified students with diligent attendance will have this question marked.

An active ( $a$ ) employee of a company can leave the company because of one of 3 reasons: voluntary withdrawal ( $w$ ), retirement ( $r$ ) or death ( $d$ ). This is illustrated by the following diagram:



You are given the following forces of transition:

- $\mu^{aw} = 0.030$
- $\mu^{ar} = 0.005$
- $\mu^{ad} = 0.001$

Calculate the probability an active employee, who left the company, left because of retirement.  
(Please turn over for more spaces to write your solution.)

EXTRA PAGE FOR DETAILS OF SOLUTION