

245. For a fully discrete 5-payment 10-year deferred 20-year term insurance of 1000 on (30), you are given:

(i) The following expenses:

	Year 1		Years 2-10	
	Percent of Premium	Per Policy	Percent of Premium	Per Policy
Taxes	5%	0	5%	0
Sales commission	25%	0	10%	0
Policy maintenance	0	20	0	10

(ii) Expenses are paid at the beginning of each policy year.

(iii) The gross premium is determined using the equivalence principle.

Which of the following is a correct expression for the gross premium?

(A) $\left(1000 {}_{10|20}A_{30} + 20 + 10a_{30:\overline{19}|}\right) / \left(0.95\ddot{a}_{30:\overline{5}|} - 0.25 - 0.10\ddot{a}_{30:\overline{4}|}\right)$

(B) $\left(1000 {}_{10|20}A_{30} + 20 + 10a_{30:\overline{19}|}\right) / \left(0.85\ddot{a}_{30:\overline{5}|} - 0.15\right)$

(C) $\left(1000 {}_{10|20}A_{30} + 20 + 10a_{30:\overline{19}|}\right) / \left(0.95\ddot{a}_{30:\overline{5}|} - 0.25 - 0.10a_{30:\overline{4}|}\right)$

(D) $\left(1000 {}_{10|20}A_{30} + 20 + 10a_{30:\overline{9}|}\right) / \left(0.95\ddot{a}_{30:\overline{5}|} - 0.25 - 0.10\ddot{a}_{30:\overline{4}|}\right)$

(E) $\left(1000 {}_{10|20}A_{30} + 20 + 10a_{30:\overline{9}|}\right) / \left(0.85\ddot{a}_{30:\overline{5}|} - 0.15\right)$