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11. Solution: B

Let

C = Event that a policyholder buys collision coverage

D = Event that a policyholder buys disability coverage

Then we are given that  $P[C] = 2P[D]$  and  $P[C \cap D] = 0.15$ .

By the independence of C and D, it therefore follows that

$$0.15 = P[C \cap D] = P[C] P[D] = 2P[D] P[D] = 2(P[D])^2$$

$$(P[D])^2 = 0.15/2 = 0.075$$

$$P[D] = \sqrt{0.075} \text{ and } P[C] = 2P[D] = 2\sqrt{0.075}$$

Now the independence of C and D also implies the independence of  $C^c$  and  $D^c$ . As a

result, we see that  $P[C^c \cap D^c] = P[C^c] P[D^c] = (1 - P[C]) (1 - P[D])$

$$= (1 - 2\sqrt{0.075}) (1 - \sqrt{0.075}) = 0.33.$$