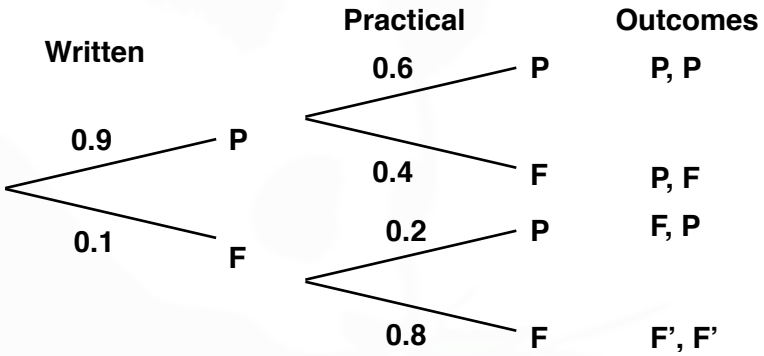
Mixed Probability Questions

Starter

1. **(Review of last lesson)** An engineering test is in two parts, a written test and a practical test. 90% who take the written test pass. The probability a person will pass the practical test, given that he/she has passed the written test, is 60%. Given a person fails the written test, the probability he/she will pass the practical test is 20%. What is the probability that:
   (a) someone passes both tests
   (b) someone passes one test
   (c) someone passes the written test given that they pass only 1 test.

Working:



(a) $P(P,P) = 0.9 \times 0.6 = 0.54$

(b) $P(P,F) + P(F,P) = 0.9 \times 0.4 + 0.1 \times 0.2 = 0.38$

(c) $$P(\text{pass written} \mid \text{pass 1 test}) = \frac{P(P,F)}{P(\text{pass one test})} = \frac{0.9 \times 0.4}{0.38} = \frac{18}{19} \approx 0.947$$

Solutions to Starter and E.g.s

Exercise

9-1 class textbook:	p267 TY Qu 1-10 or p263 E8.3 Qu 1-12 (difficult)
A*-G class textbook:	p226 TY Qu 1-10
9-1 homework book:	p263 E8.3 Qu 1-12
A*-G homework book:	No exercise

Homework book answers (only available during a lockdown)