Centre No.						Paper Reference							Surname Correction	Initial(s)
Candidate No.						1	3	8	0	/	3	H	Signature M. Semour	

Paper Reference(s)

1380/3H

Edexcel GCSE

Mathematics (Linear) – 1380

Paper 3 (Non-Calculator)

Probability Tree

Past Paper Questions

Arranged by Topic

Examiner's use only

Team Leader's use only

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page.
Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 26 questions in this question paper. The total mark for this paper is 100.
There are 24 pages in this question paper. Any blank pages are indicated.
Calculators must not be used.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

Turn over

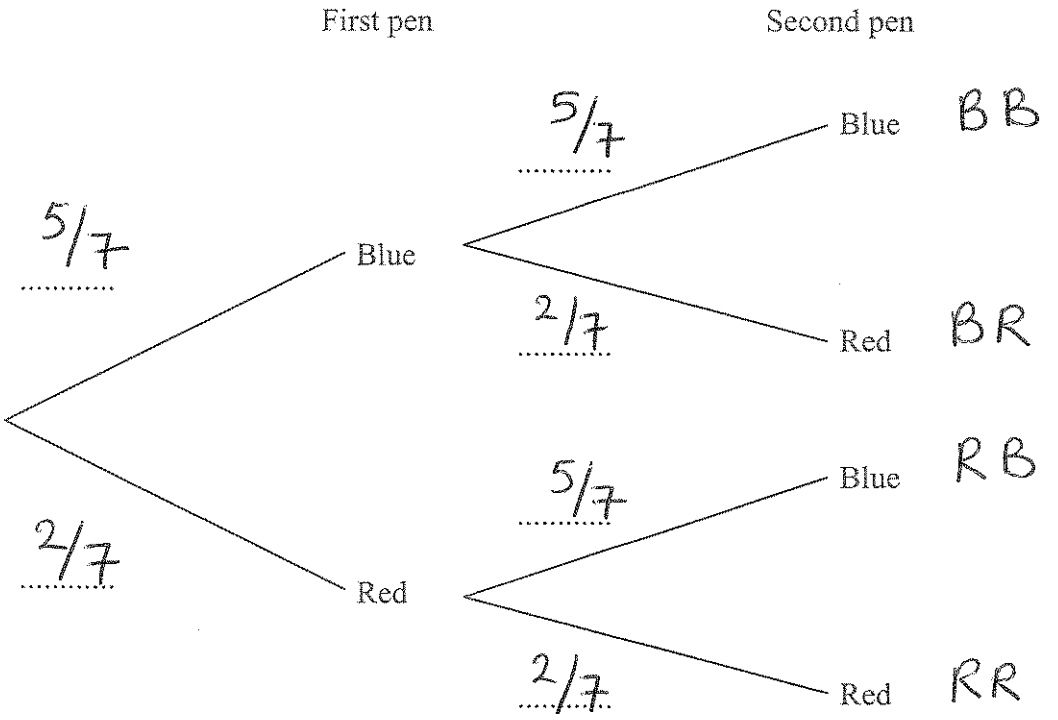
Leave blank

1. Emma has 7 pens in a box.
5 of the pens are blue.
2 of the pens are red.

Emma takes at random a pen from the box and writes down its colour.
Emma puts the pen back in the box.

Then Emma takes at random a second pen from the box, and writes down its colour.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Emma takes exactly one pen of each colour from the box.

BR or RB

$\frac{5}{7} \times \frac{2}{7} + \frac{2}{7} \times \frac{5}{7}$

$\frac{10}{49} + \frac{10}{49} = \frac{20}{49}$

20/49

(3)

Q19

(Total 5 marks)

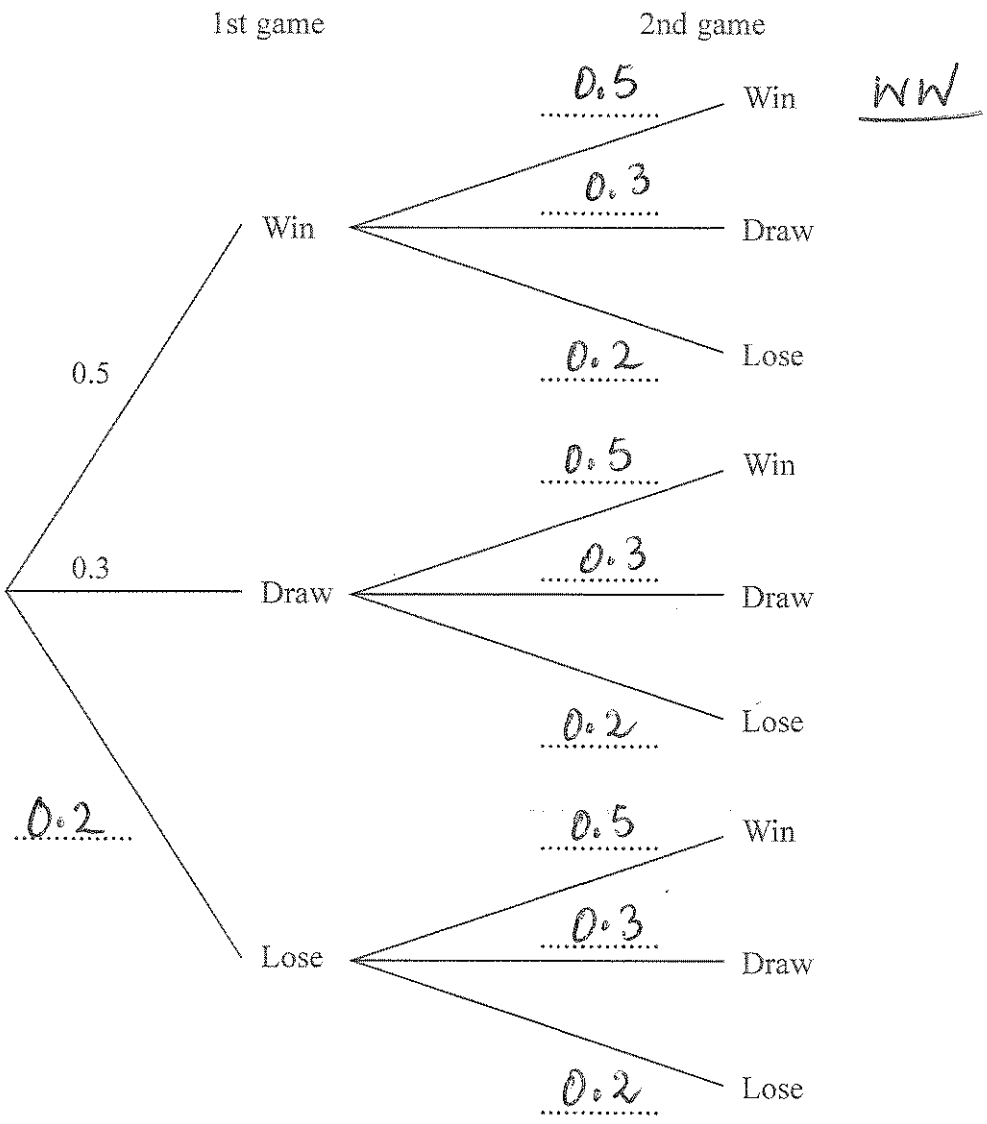
Leave blank

2. In a game of chess, a player can either win, draw or lose.

The probability that Vishi wins any game of chess is 0.5
The probability that Vishi draws any game of chess is 0.3

Vishi plays 2 games of chess.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Vishi will win both games.

WW : $0.5 \times 0.5 = 0.25$

0.25

(2)

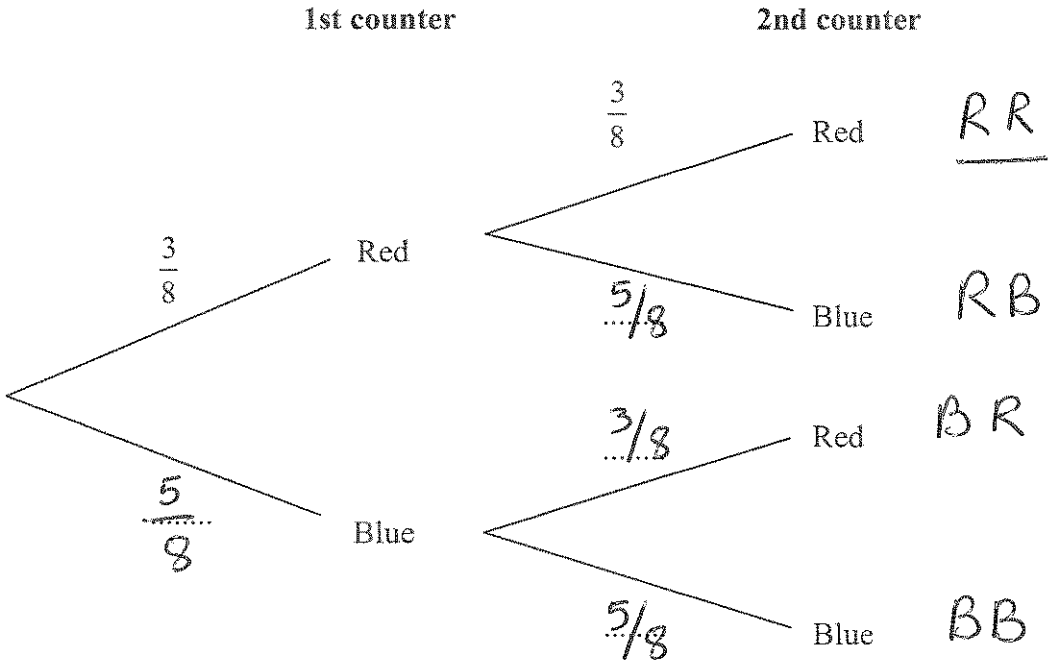
(Total 4 marks)

Q2

Leave blank

3. Matthew puts 3 red counters and 5 blue counters in a bag.
He takes at random a counter from the bag.
He writes down the colour of the counter.
He puts the counter in the bag again.
He then takes at random a second counter from the bag.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Matthew takes two red counters.

RR : $\frac{3}{8} \times \frac{3}{8} = \frac{9}{64}$

9/64

(2)

(Total 4 marks)

Q3

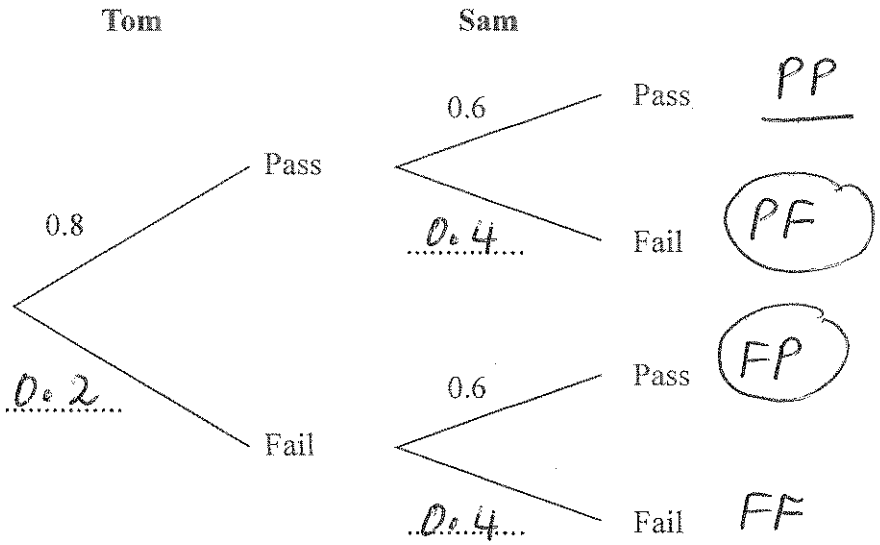
Leave blank

4. Tom and Sam each take a driving test.

The probability that Tom will pass the driving test is 0.8

The probability that Sam will pass the driving test is 0.6

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that both Tom and Sam will pass the driving test.

PP : $0.8 \times 0.6 = 0.48$

0.48

(2)

(c) Work out the probability that only one of them will pass the driving test.

PF or FP : $0.8 \times 0.4 + 0.2 \times 0.6$

$0.32 + 0.12$

0.44

(3)

Q4

(Total 7 marks)

Leave blank

5. There are 3 orange sweets, 2 red sweets and 5 yellow sweets in a bag.

Sarah takes a sweet at random.
She eats the sweet.
She then takes another sweet at random.

Work out the probability that both the sweets are the same colour.

Bag { 3 orange O
2 red R
5 yellow Y

(O O) or (R R) or (Y Y)

$\frac{3}{10} \times \frac{2}{9} + \frac{2}{10} \times \frac{1}{9} + \frac{5}{10} \times \frac{4}{9}$

$\frac{6}{90} + \frac{2}{90} + \frac{20}{90} = \frac{28}{90}$

28/90 or 14/45 ..... Q5

(Total 4 marks)

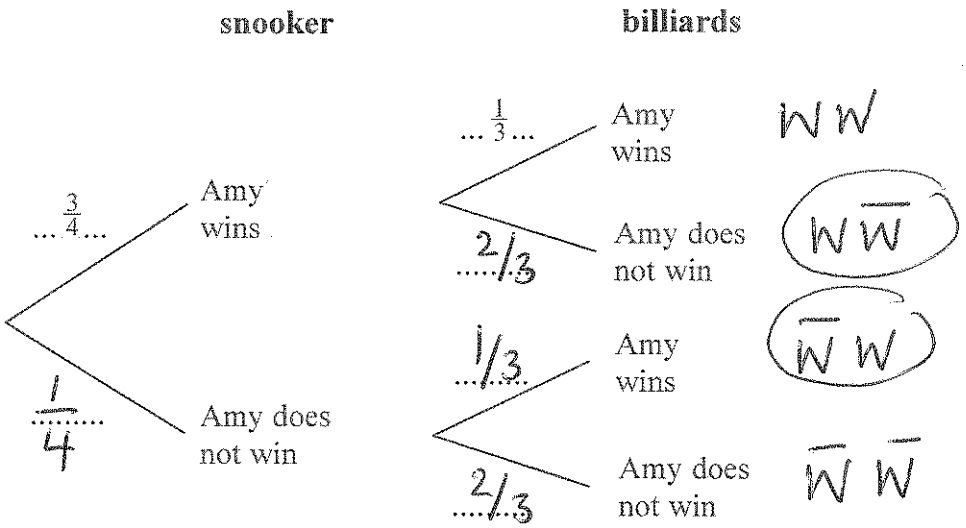
Leave blank

6. Amy is going to play one game of snooker and one game of billiards.

The probability that she will win the game of snooker is $\frac{3}{4}$

The probability that she will win the game of billiards is $\frac{1}{3}$

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Amy will win **exactly** one game.

$(W\bar{W})$ or $(\bar{W}W)$

$\frac{3}{4} \times \frac{2}{3} + \frac{1}{4} \times \frac{1}{3}$

$\frac{6}{12} + \frac{1}{12} = \frac{7}{12}$

$\frac{7}{12}$

(3)

Amy played one game of snooker and one game of billiards on a number of Fridays.
She won at **both** snooker and billiards on 21 Fridays.

(c) Work out an estimate for the number of Fridays on which Amy did not win either game.

$P(WW) = \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$

$P(\text{Did not win either game}) = 1 - \frac{1}{4} = \frac{3}{4}$ approximately

Number of fridays $= \frac{3}{4} \times (54 - 21)$

$\approx 3/4 \times 32$

24

(3)

Q6

(Total 8 marks)

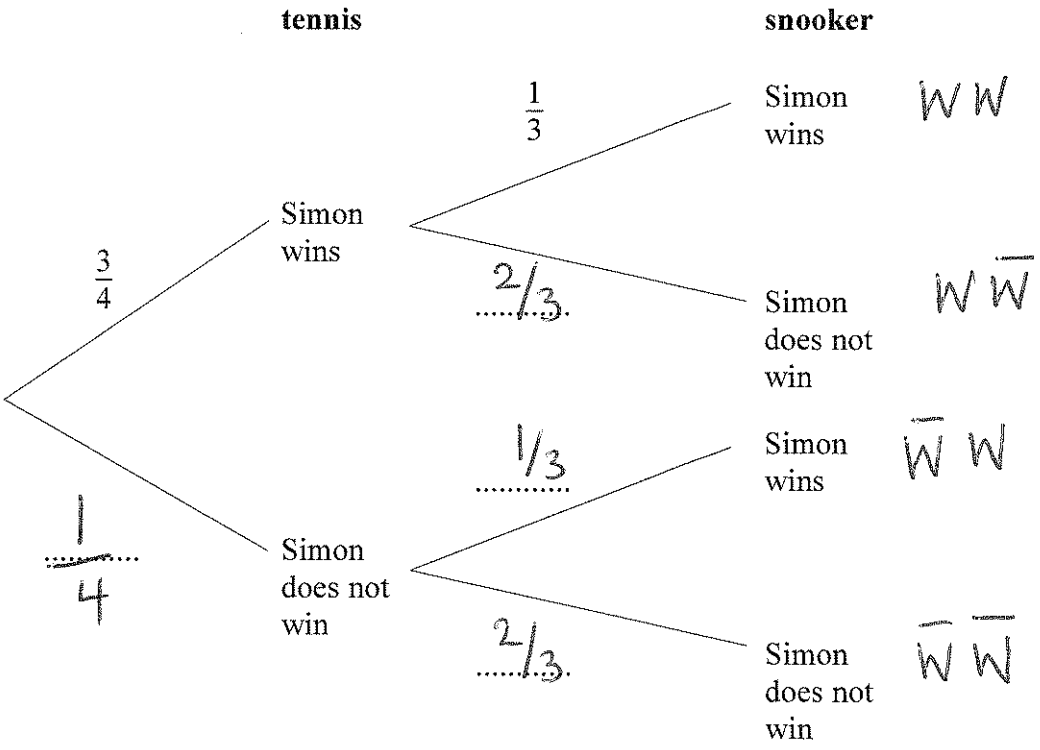
Leave blank

7. Simon plays one game of tennis and one game of snooker.

The probability that Simon will win at tennis is $\frac{3}{4}$

The probability that Simon will win at snooker is $\frac{1}{3}$

(a) Complete the probability tree diagram below.



(2)

(b) Work out the probability that Simon wins both games. WW

$\frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$

.....

(2)

(c) Work out the probability that Simon will win only one game.

$W\bar{W}$ or $\bar{W}W = \frac{3}{4} \times \frac{2}{3} + \frac{1}{4} \times \frac{1}{3}$

$= \frac{6}{12} + \frac{1}{12} = \frac{7}{12}$

7/12

(3)

(Total 7 marks)

Q7