AQA – Probability – GCSE Mathematics Paper-1

1.   May/2020/Paper_1F/No.16

The table shows information about how 150 students travel to school.

	Walk	Bus	Car	
Girls	22	33	17	Total = 72
Boys	24	41	13	Total = 78

(a)   What fraction of the **girls** walk to school?

Give your answer in its simplest form.

[2 marks]

_____

_____

Answer _____

(b)   One of the **boys** is chosen at random.

What is the probability that the boy travels to school by bus?

[1 mark]

_____

_____

Answer _____

(c) What percentage of the 150 **students** travel to school by car?

[2 marks]

_____

_____

_____

Answer _____ %

2.   May/2020/Paper_1F/No.19

Bags X and Y each contain counters.

Bag X	**Bag Y**
30 counters	5 counters
Each counter is green, white or yellow	3 green and 2 red

(a)   P(green counter from X) = P(red counter from Y)

Work out the number of green counters in X.

[2 marks]

Answer _____

(b)   All 35 counters are put into one bag.

One counter is picked at random.

Work out the probability that the counter is **not** red.

[2 marks]

Answer _____

3.   June/2019/Paper_1F/No.8(b),(c)

The game is played again.

(b)   Use the chart to estimate the probability that the winning score is 25

[1 mark]

Answer _____

(c)   Use the chart to estimate the probability that the winning score is 27 or more.

[2 marks]

_____

_____

_____

Answer _____

4. June/2019/Paper_1F/No.21

Anna plays a game with an ordinary, fair dice.

If she rolls 1 she wins.

If she rolls 2 or 3 she loses.

If she rolls 4, 5 or 6 she rolls again.

When she has to roll again,

if she rolls an odd number she wins

if she rolls an even number she loses.

(a) Complete the tree diagram with the four missing probabilities.

[2 marks]

First roll   **Second roll**

1

_____

2 or 3

_____

$\dfrac{1}{2}$

4, 5 or 6

_____   Odd

_____   Even

(b)   Is Anna more likely to win or to lose?

You **must** work out the probability that she wins.

[4 marks]

_____

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5. June/2019/Paper_1H/No.6

Anna plays a game with an ordinary, fair dice.

If she rolls 1 she wins.

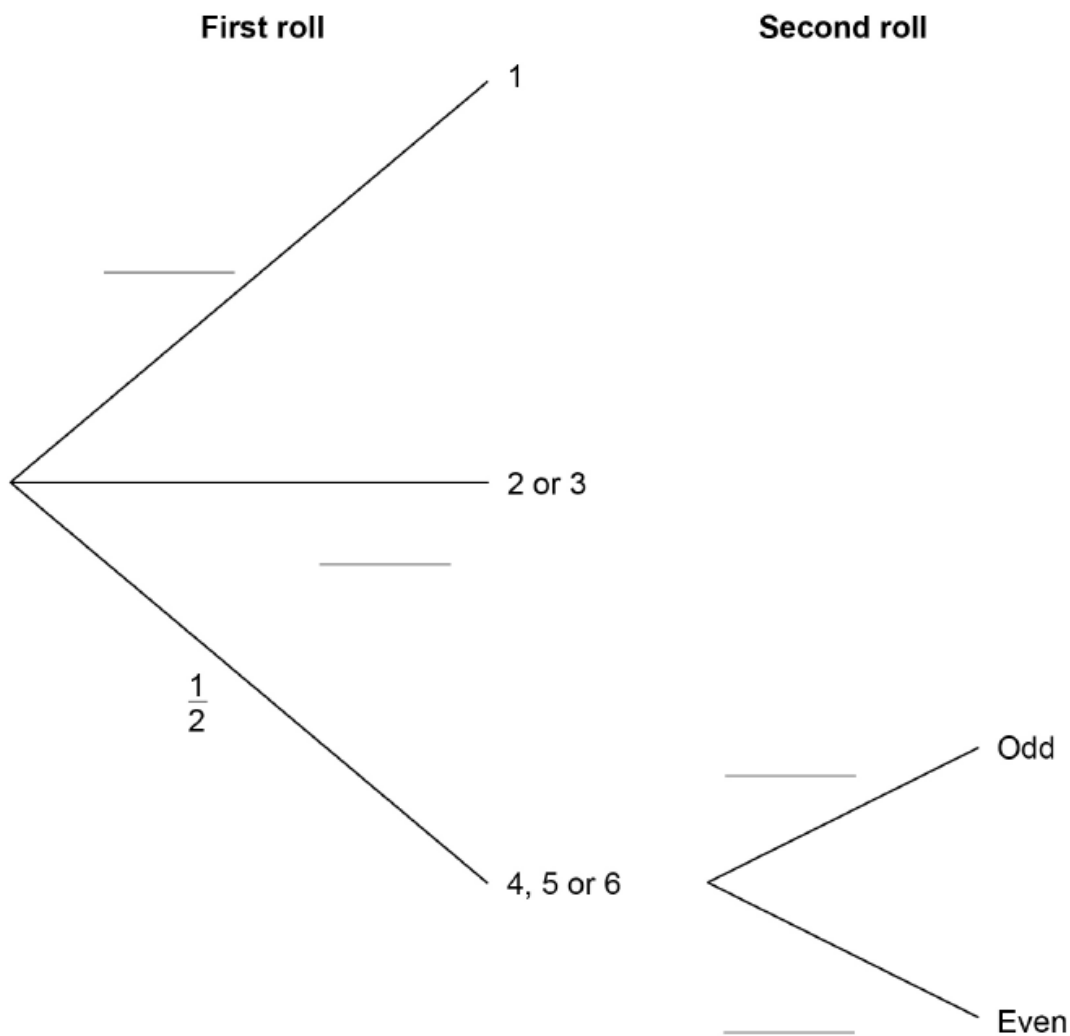If she rolls 2 or 3 she loses.

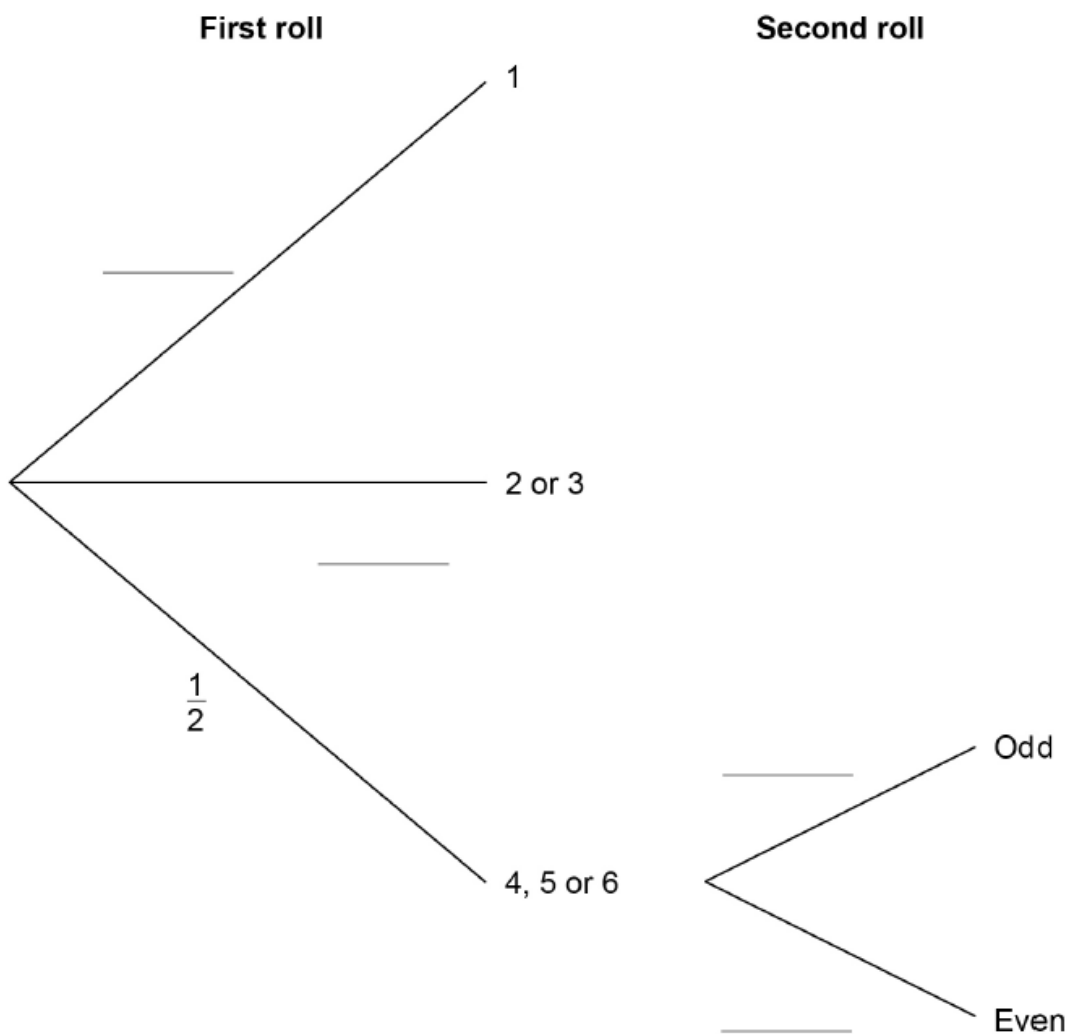If she rolls 4, 5 or 6 she rolls again.

When she has to roll again,

if she rolls an odd number she wins

if she rolls an even number she loses.

(a) Complete the tree diagram with the four missing probabilities.

[2 marks]

First roll   **Second roll**

1

_____

2 or 3

_____

$\frac{1}{2}$

4, 5 or 6

_____ Odd

_____ Even

(b)   Is Anna more likely to win or to lose?

You **must** work out the probability that she wins.

[4 marks]

_____
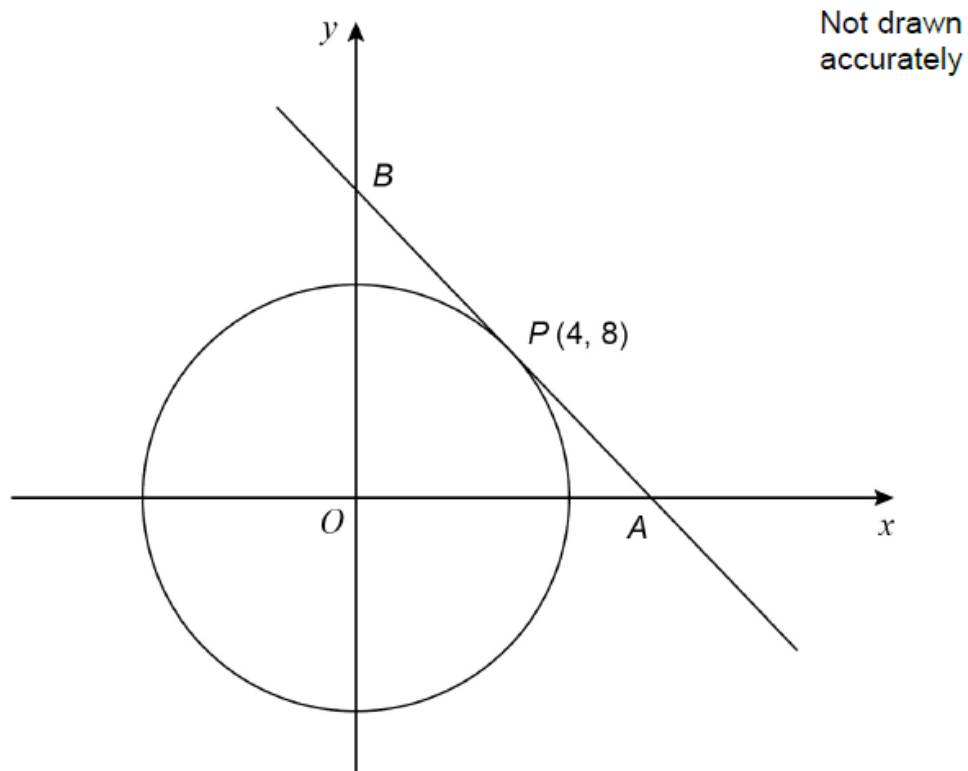
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6. June/2019/Paper_1H/No.25

P (4, 8) is a point on a circle, centre O.

The tangent at P intersects the axes at points A and B.

Not drawn accurately

(a) Show that the gradient of the tangent is $-\dfrac{1}{2}$

[2 marks]

_____

_____

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_____

_____

9

(b) Work out the length *AB*.

Give your answer in the form $a\sqrt{5}$ where a is an integer.

You **must** show your working.

[4 marks]

_____

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_____

_____

Answer _____ units

7. Nov/2019/Paper_1F/No.11

In a raffle, 200 tickets are sold.

The tickets are either red or blue.

The winning ticket is picked at random.

(a) What is the probability that the winning ticket is green?

[1 mark]

Answer _____

(b) 79 children and 90 women buy one ticket each.

Men buy the rest of the tickets.

Work out the probability that a man buys the winning ticket.

[2 marks]

_____

_____

_____

Answer _____

11

8. Nov/2019/Paper_1F/No.20

An ordinary fair dice is rolled.

$$P(A) = \frac{5}{6}$$

Which could be a correct statement about event A?

Tick **one** box.

[1 mark]

☐ The number rolled is even

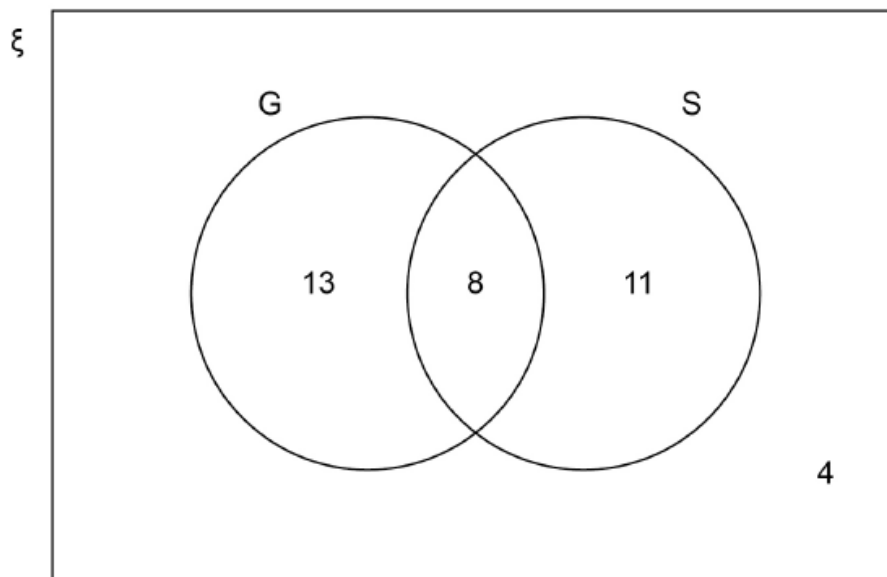☐ The number rolled is greater than 1

☐ The number rolled is less than 5

☐ The number rolled is prime

8. Nov/2019/Paper_1F/No.20

9. Nov/2019/Paper_1H/No.20

The Venn diagram shows information about some houses.

G = houses with a garage

S = houses with a shed

A house is chosen at random.

(a) The house has a garage.

What is the probability that it has a shed?

[1 mark]

Answer _____

(b) The house does **not** have a garage.

What is the probability that it does **not** have a shed?

[1 mark]

Answer _____

(c)   Show that $P(G \cap S)' > P(G \cup S')$

[2 marks]

_____

_____

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_____

_____

10. Nov/2019/Paper_1H/No.25

A bag contains 8 balls.

3 are red and 5 are blue.

2 balls are taken from the bag at random without replacement.

(a) Write down the probability that there is **at least** 1 red ball still in the bag.

[1 mark]

Answer _____

(b) Work out the probability that there are **at least** 2 red balls still in the bag.

[3 marks]

Answer _____

15

16