JP Maths Revision

Attempt the paper before watching the solutions https://www.youtube.com/@JPMathsRevision

Foundation / Higher Tier

Listing possible outcomes

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The marks for **each** question are shown in brackets- *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1. A restaurant offers the following choices:

Starters:

- Soup
- Garlic Bread
- Salad

Main Courses:

- Pizza
- Pasta
- Burger

List all the possible combinations of one starter and one main course.

Soup - pizza
GB - pizza
Salad - pizza
Soup - pasta
GB - pasta
Salad - pasta
Soup - Burger
GB - Burger
Salad - Burger

(Total for Question 1 is 2 marks)

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2. A fair coin is flipped and a fair six-sided dice is rolled.

List all the possible outcomes.

H - 1
H - 2
H - 3
H - 4
H - 5
H - 6
T - 1
T - 2
T - 3
T - 4
T - 5
T - 6

(Total for Question 2 is 2 marks)

3. A fair coin is flipped twice.

List all the possible outcomes.

HH
HT
TH
TT

(Total for Question 3 is 2 marks)

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4. A spinner has four equal sections labelled 1, 2, 3 and 4.

The spinner is spun twice.

(a) List all the possible outcomes.

1-1 2-2 3-3 4-4
1-2 2-3 3-4
1-3 2-4
1-4

(2)

(b) What is the probability that the total is 5?

1+4 = 5
2+3 = 5

$\frac{2}{10}$

(2)

(c) What is the probability that the same number is obtained both times?

$\frac{4}{10}$

(2)

(Total for Question 4 is 6 marks)

5. Three number cards are shown:

A two-digit number is made using two different cards.

Write down all the possible two-digit numbers.

25 57
27 72
52 75

(Total for Question 5 is 2 marks)

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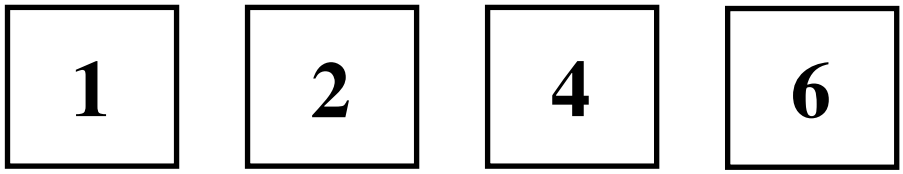
6. Four number cards are shown:



A three-digit number is made using 3 different cards.

Write down all the possible three-digit numbers.

124 214 412 612
126 216 416 614
146 241 421 621
142 246 426 624
162 261 461 641
164 264 462 642

(Total for Question 6 is 2 marks)

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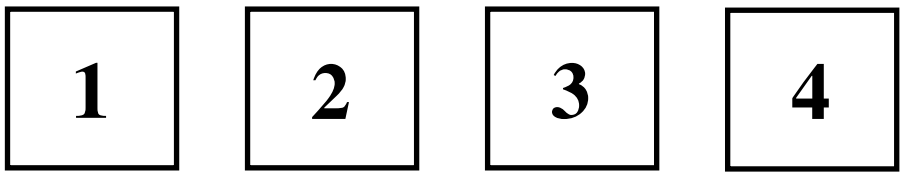
7. Four number cards are shown:



Two cards are picked at random without replacement and the numbers are added together.

What is the probability that the total is odd?

1 + 2 = 3
1 + 3 = 4
1 + 4 = 5

2 + 1 = 3
2 + 3 = 5
2 + 4 = 6

3 + 1 = 4
3 + 2 = 5
3 + 4 = 7

4 + 1 = 5
4 + 2 = 6
4 + 3 = 7

$\frac{8}{12}$ or $\frac{2}{3}$

(Total for Question 3 is 4 marks)

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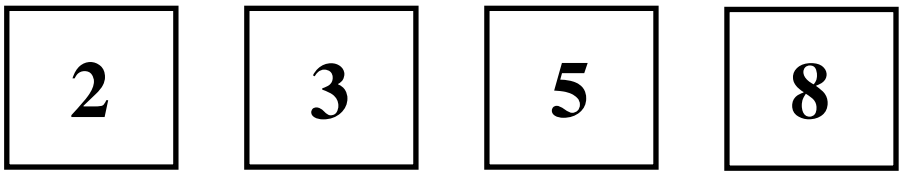
8. Four number cards are shown:



Two cards are picked at random without replacement and the numbers are added together.

What is the probability that the total is even?

2 + 3 = 5
2 + 5 = 7
2 + 8 = 10

3 + 2 = 5
3 + 5 = 8
3 + 8 = 11

5 + 2 = 7
5 + 3 = 8
5 + 8 = 13

8 + 2 = 10
8 + 3 = 11
8 + 5 = 13

$\frac{4}{12}$ or $\frac{1}{3}$

(Total for Question 3 is 4 marks)