

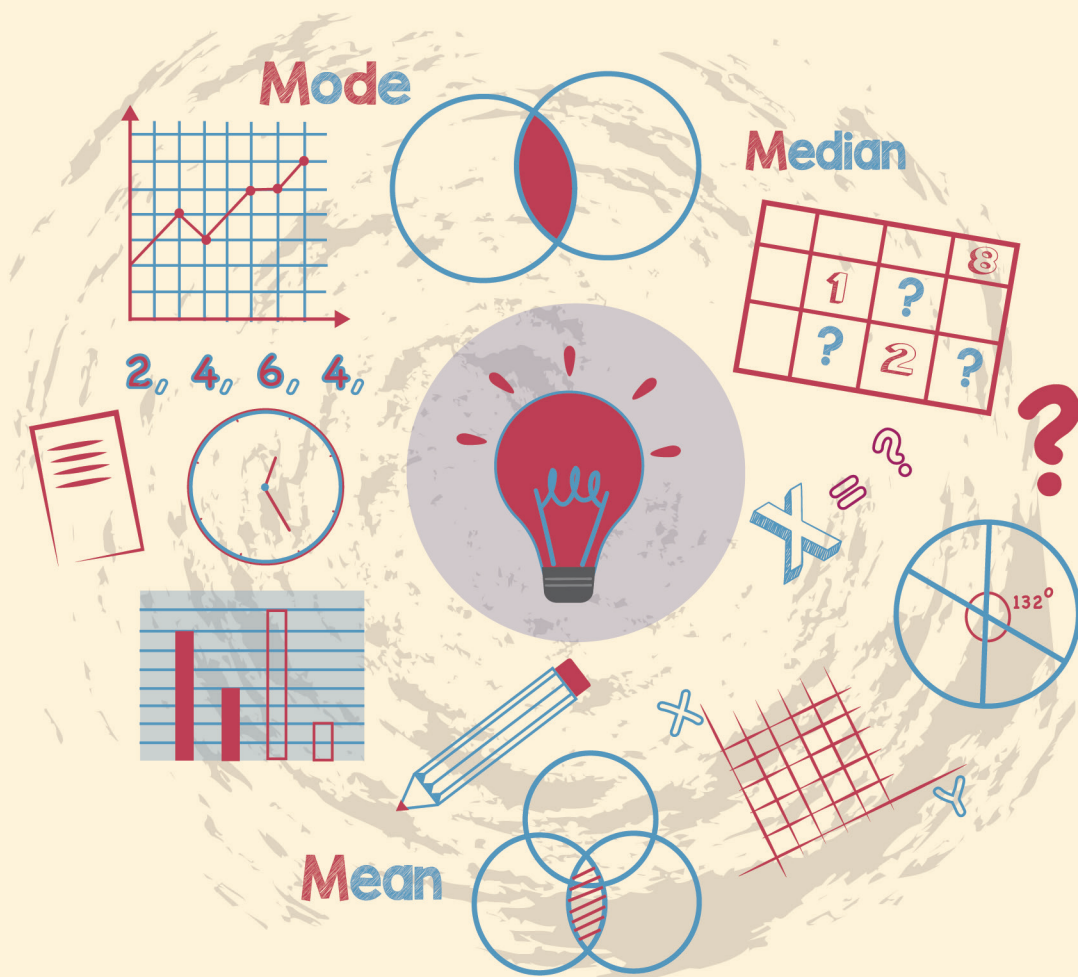


Pi Academy

11+ Maths

Statistics and Probability

COURSE HANDBOOK



Effective Crash Course

• Practice Questions • Homework • Past Paper Questions



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- Probability

The page features a minimalist design with blue lines forming a crosshair and yellow rectangular blocks on the left and right sides.

CHAPTER I



Practice Questions

7

Some sprinters took part in two different races and their times were recorded in seconds in the table below:

Names	100 m Sprint (In Seconds)	600 m Sprint (In Seconds)	Total Time (In Seconds)
Anna	11.99	107.6	119.59
Bella	14.46	111.72	
Chris		115.94	132.67
David	16.22		122.51
Emma		116.45	135.55






- Fill in the missing times for each athlete.
- Rounded to the nearest whole second, what is the combined 100 m sprint time for the three fastest athletes?
- Which two athletes have a combined 600 m race time between 224 and 225 seconds?
- Which three athletes have a combined total race time of 382 seconds when rounded to the nearest second?





Practice Questions

9

Jack's dairy factory exports packets of milk. The pictograph shows the number of packets exported each month. Use the information from the graph to answer the questions.

Milk packets Exported	
Month	Number of Milk packets
January	
February	
March	
April	
June	

Key
 = 2000 milk packets
 = 1000 milk packets

- Which two months did they export less packets of milk?
- How many key images would represent 18000 packets of milk?
- How many more packets of milk were exported in June than in April?
- How many packets of milk were exported in February and March altogether?

“

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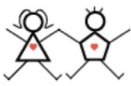


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Homework

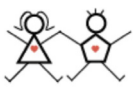
13

The diagram shows the distance, in miles, between some service areas on the M55 motorway. [2]



Complete the table.

Lancaster				
26	Manchester			
66		Broughton		
	73	33	Kirkham	
	101		28	Marton

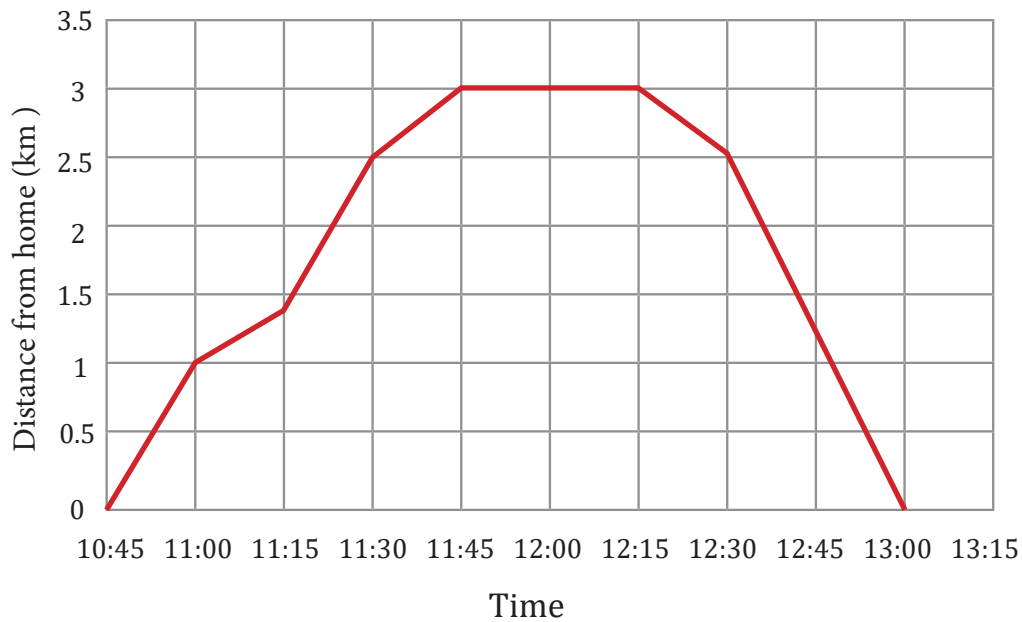


Homework

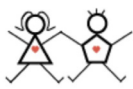
15

Jack travelled to the shopping centre and back. The distance-time graph shows information about his journey.

[2]

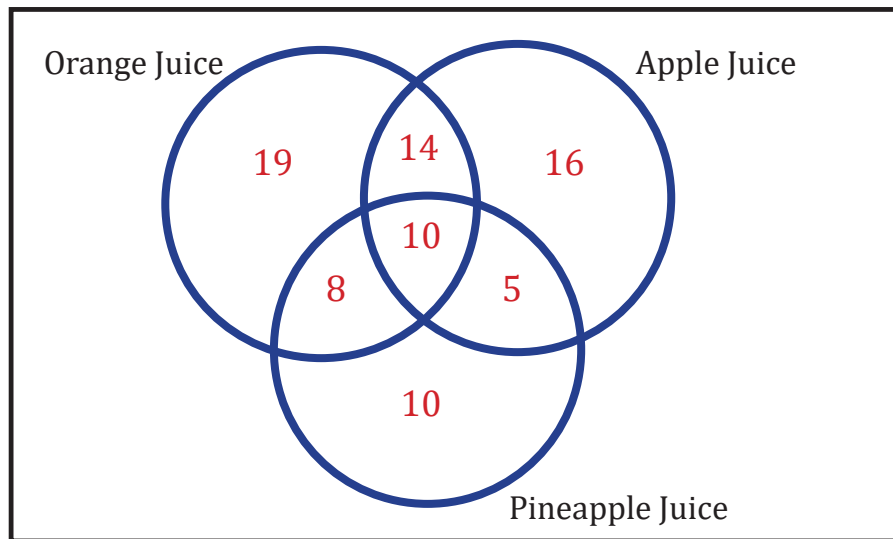


- What time did Jack begin his journey?
- How far was Jack from the shopping centre at 11 am?
- How long did Jack stay at the shopping centre?
- How far did Jack travel in total?



Practice Questions

- 28 Scarlett asked 84 people which drinks they enjoy from orange juice, apple juice and pineapple juice.



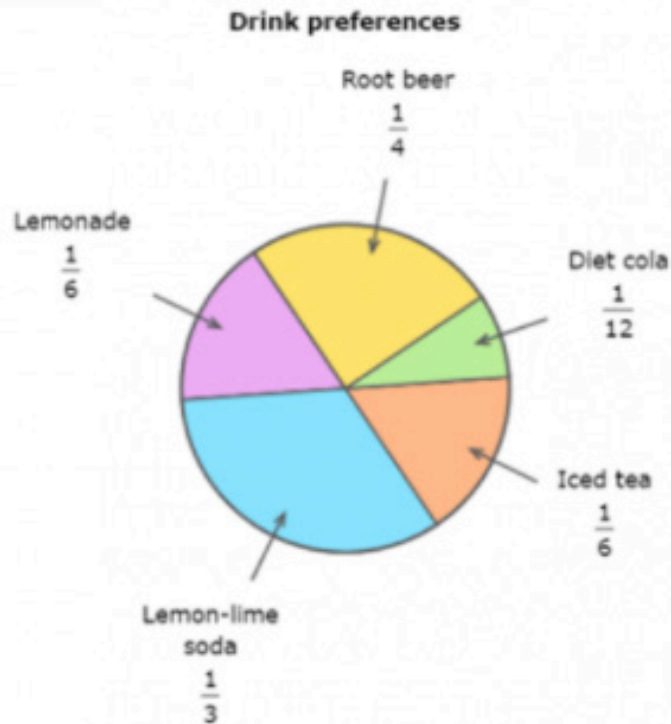
- How many enjoy all three juices?
- How many enjoy orange and apple juice but not pineapple juice?
- How many enjoy neither of them?
- Which juice is enjoyed by the most number of people?



Practice – Past Paper Questions

2

Students at Arlington Secondary School were polled regarding their favourite drinks.



Given that there are 600 students at the school, how many more preferred root beer than lemonade?

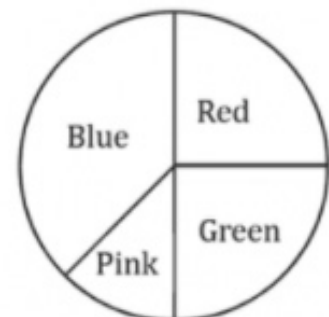
..... [2]

Ref: Aldenham School, Q23, 11+ Past Paper 2019

3

A class of 32 students vote on their favourite colour. They then draw a pie chart to show their results. The pie chart is shown on the right.

(a) How many students favourite colour is Green?

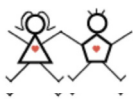


..... [1]

(b) How many students favourite colour is NOT Blue?

..... [2]

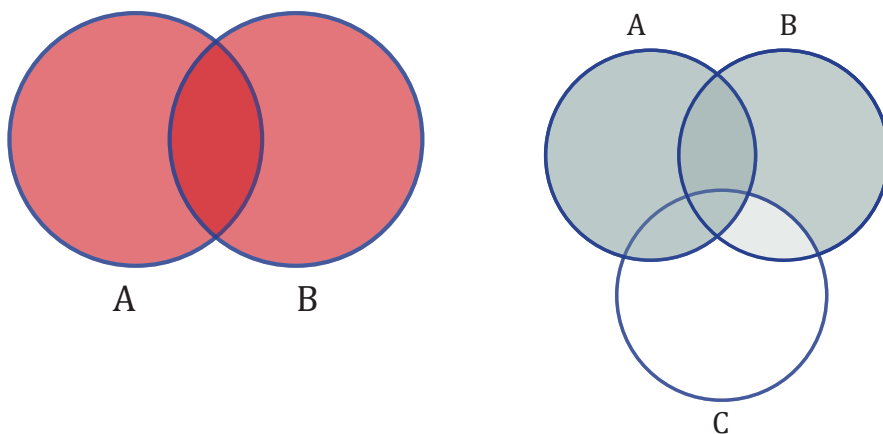
Ref: Reigate Grammar School, Q26, 11+ Past Paper 2019



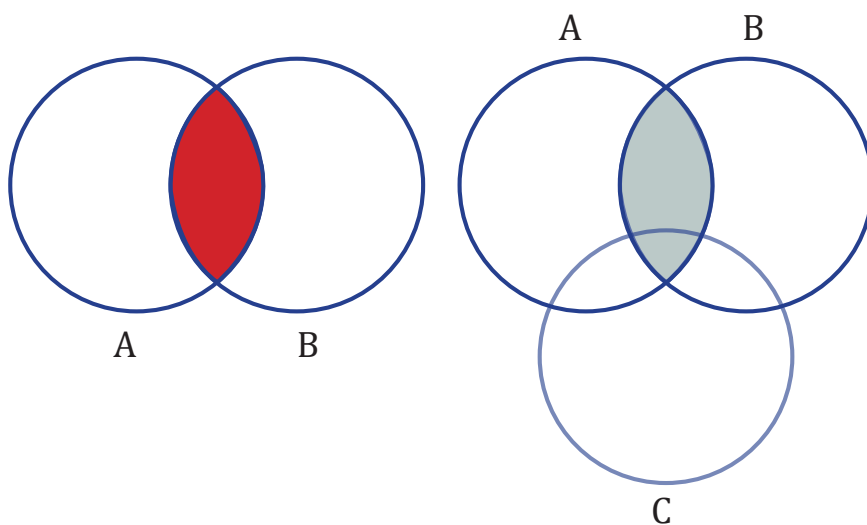
Keypoints

Venn diagram

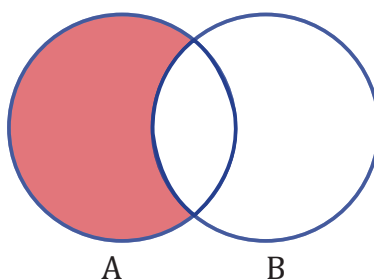
1. $(A \text{ or } B)$ is the set of all values that are included in A , or B or in Both.

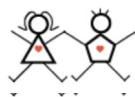


2. $(A \text{ and } B)$ is the set of all values that are included in both A and B .



3. $(A \text{ not } B)$ is the set of all the values of A that are not included in B .





Keywords

- | |
|--------------------|
| a) Pie chart |
| b) Venn diagram |
| c) Fraction |
| d) Angle |
| e) Sector |
| f) Percentage |
| g) Tables |
| h) Least |
| i) Most |
| j) Angle of sector |
| k) Chart |
| l) Probability |
| m) A or B |
| n) A and B |
| o) A not B |
| p) A and B and C |
| q) A not B not C |

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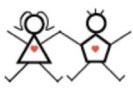


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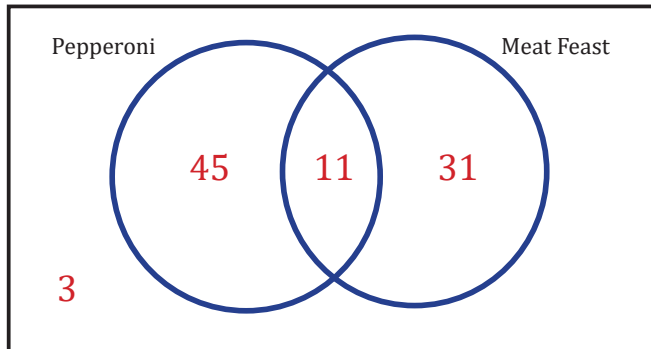
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Chapter 2: Answers

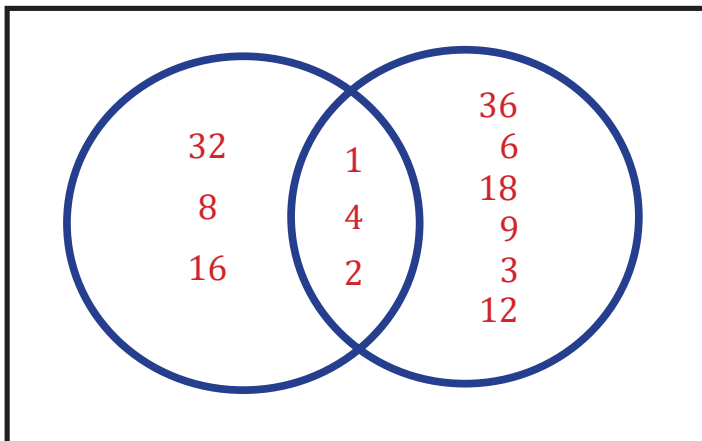
25. a)



b) 45 people

26. 13

27.



28. a) 10

b) 14

c) 2

d) Orange Juice



Practice Questions

- 5 Jonny puts 12 books on a shelf. The 12 books take up 30 centimetres.

a) What is the mean thickness of his books?

The shelf is 150 centimetres long.

He wants to fill the shelf with a mixture of books like the first 12 books.

Estimate how many books he can get on the 150 cm shelf.


















- 6 The mean of 6, 12, 14, 9, 4, x , 15 is 9. Find the value of x .

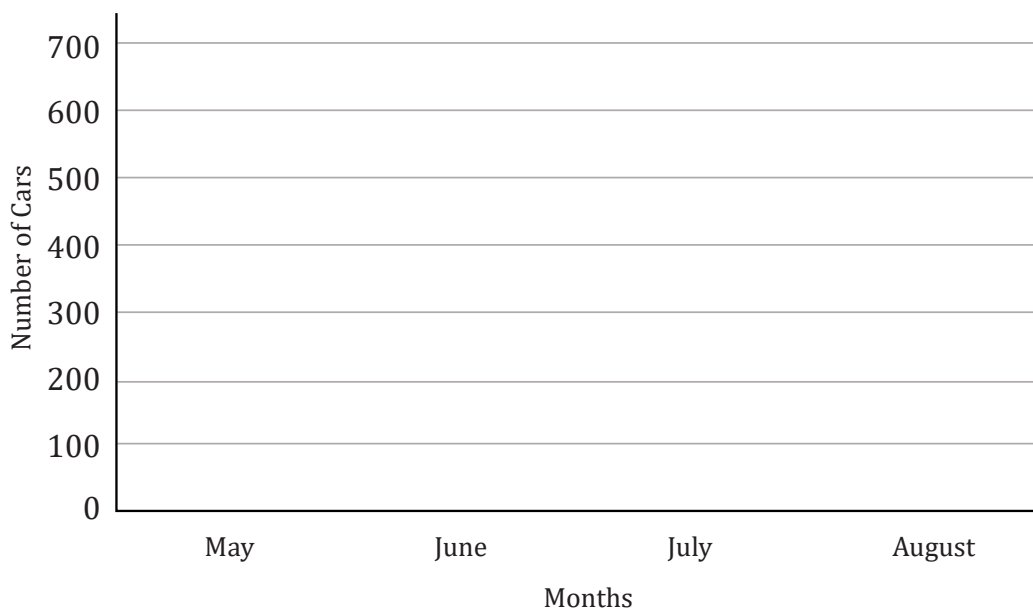


Practice Questions

- 18 A car shop records the number of cars that they sell for four months in a pictogram. Complete the bar graph for the same.

May	  
June	   
July	  
August	   

 = 150 cars





Homework – Past paper Questions

7

When I throw a green dice and a red dice together there are 36 number outcomes. **Note that green1, red2 and green2, red1 are different outcomes.**

[5]

You may find it helpful to complete the grids below to help you, although completing the grids does not gain extra marks. The grids will be useful in answering the questions below

		Red					
		1	2	3	4	5	6
Green	Sum (+)	1	2		4		7
	2		4			7	
	3	4		6	7		9
	4		6			9	
	5		7		9		11
	6	7	8	9		11	

		Red					
		1	2	3	4	5	6
Green	Product (x)	1	1	2	3		5
	2		4	6		10	
	3	3		9		15	18
	4	4			16		
	5		10	15			
	6	6					36

		Red					
		1	2	3	4	5	6
Green	Difference (-)	1	0	1		4	5
	2		0			3	
	3			0	1		3
	4				0		
	5	4	3		1	0	1
	6		4			1	0

(a) How many sums of the two numbers are factors of 24?

(b) How many of the products are even?

(c) How many of the differences are prime numbers (remember 1 is not a prime number)

(d) For what fraction of the throws is the green score greater than the red score?

(e) What is the probability that the sum of the two numbers is more than six (6)?

Ref: The Manchester Grammar School, Q11, 11+ Past Paper 2013

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