

# Reasoning and Problem Solving

## Mixed Problems

### National Curriculum Objectives:

This pack covers some objectives from the following strands:

Fractions (including decimals and percentages)

Place Value

Statistics

Measurement

Addition and Subtraction

Multiplication and Division

### About this resource:

This resource is aimed at Year 5 Expected and has been designed to help children practise their problem solving skills. The questions are designed in such a way that children can work through it independently or in pairs to prompt discussion and understanding.

More [Year 5 Maths](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

# Reasoning and Problem Solving – Mixed Problems

1. Jardeen is an area manager. He has asked his store managers to offer discounts on pet food in their stores.



Liverpool store

To... jardeen@superstore.co.uk

Subject Discounts

Hi Jardeen,

We're offering discounts of  $\frac{1}{10}$  off all of our pet food.

Thanks,  
Michelle, Store Manager, Bradford

**Woofies**  
Was: £6  
Now: £4.50

Halifax store



Manchester store

I've only paid 70% for my Woofies compared to before the discount!



Customer,  
Leeds

Order the stores' discounts on Woofies pet food from lowest to highest.

2. Dennis has created this maths puzzle but has made five mistakes. Find and correct them. The arrows should not change.

→

- 15,640

→

Twenty-nine thousand, four hundred and sixty-three

→

+ 170

→

27,633

←

- 41,400

←

51,003

←

+ 24,000

←

Twenty-seven thousand, four hundred and three

←

- 1,230

↙

- 540

→

Nine thousand, four hundred and sixty-three

→

+ 50

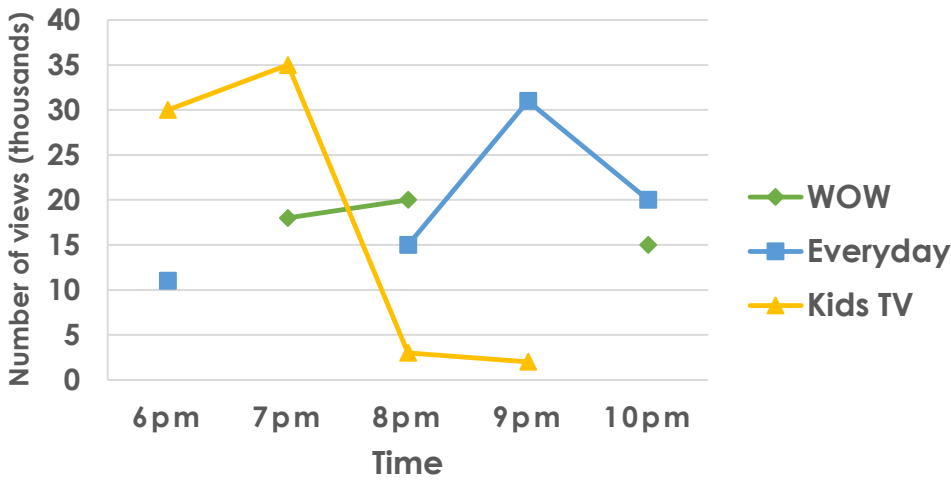
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# Reasoning and Problem Solving – Mixed Problems

3. A production company gathered information about the viewing figures of their TV channels on a Thursday evening. The table shows the total viewing figures across the three channels.



TV Channel Viewing Figures



Time	Total viewing figures
6pm	56,000
7pm	67,000
8pm	
9pm	41,000
10pm	36,000

- A. Fill in the missing parts of the line graph and table.  
 B. How many fewer people were watching WOW than Everyday at 10pm?  
 C. What could have happened at 9pm?



4. Darlene is a scientist and has measured the mass or capacity of some objects before and after a chemical reaction.

Object	Mass/capacity before	Mass/capacity after
Wax	600g	1.1lbs
Coal	1.5kg	3.7lbs
Sulphur	0.5lbs	250g
Water	2.6 pints	1.5L
Nitric acid	150ml	$\frac{1}{4}$ pint

Sort the objects into those which gained mass and those which lost mass/capacity. Use 1 pint  $\approx$  568ml and 1kg = 2.2lbs.

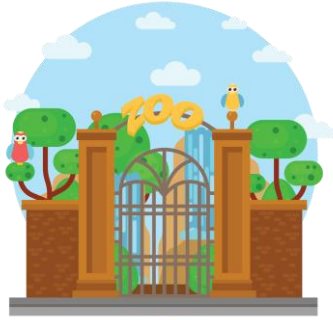
Gained mass/capacity

Lost mass/ capacity











## Reasoning and Problem Solving – Mixed Problems

5. Julie wants to go to the zoo with her family for her 7<sup>th</sup> birthday. The prices depend on their ages.



**ZOO**

Ticket type	Price
Adult	£24.99
Junior (6-12 years)	£18.49
Infant (1-5 years)	£11.99
OAP (65 years +)	£22
Baby (< 12 months)	Free

							
Freddie	Polly	Jim	Henry	Jack	Archie	Sarah	Barb
28	71	73	11 years	36	27	86	38
weeks	months	years	5 months	years	months	months	years

Julie's mum, Barb, buys five of the tickets and spends £83.97. Whose tickets could she have bought?

6. Wilma the witch orders ingredients to make potions.



Number of packs bought	Ingredient			
	Beetle wings (pack of 6)	Bee wings (pack of 8)	Snot (one 10ml bottle)	Frog legs (pack of 9)
1-11	£2	£2.30	£18	£38
12-23	£1.50	£1.90	£15.70	£35
24 or more	£1	£1.25	£12.30	£32

A. She needs 1,153 beetle wings, 185 frog legs and 106ml of snot for a potion. What is the least expensive way to buy the ingredients? Explain your answer.

B. She currently buys 9 packs of bees wings every month for a ritual. She thinks she could save over £50 a year if she bought the same number of beetle wings each month instead. Is she correct? Explain your answer.

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Manchester store

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Customer,  
Leeds

Order the stores' discounts on Woofies pet food from lowest to highest.

**Bradford (10%), Liverpool (20%) Halifax (25%) Leeds (30%), Manchester (33.3%)**

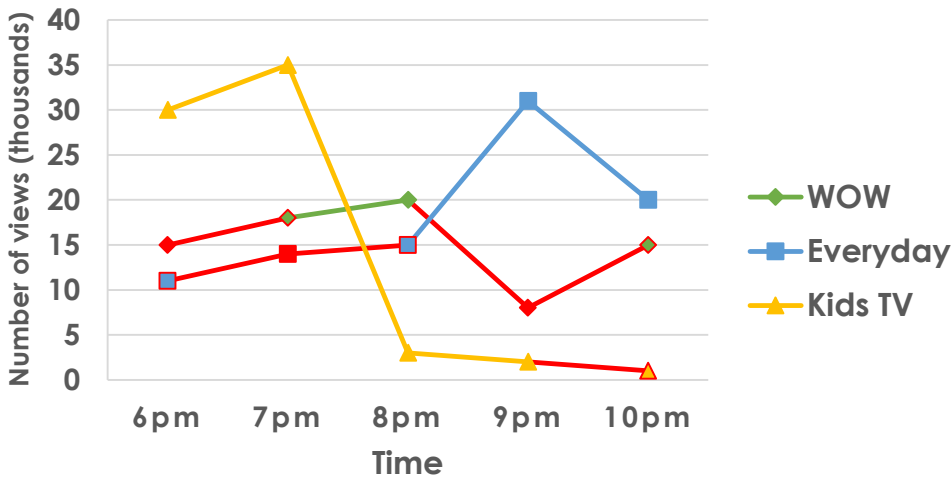
2. Dennis has created this maths puzzle but has made five mistakes. Find and correct them. The arrows should not change.

# Reasoning and Problem Solving – Mixed Problems

3. A production company gathered information about the viewing figures of their TV channels on a Thursday evening. The table shows the total viewing figures across the three channels.



TV Channel Viewing Figures



Time	Total viewing figures
6pm	56,000
7pm	67,000
8pm	38,000
9pm	41,000
10pm	36,000

- A. Fill in the missing parts of the line graph and table.  
 B. How many fewer people were watching WOW than Everyday at 10pm?  
 C. What could have happened at 9pm?

5,000

Most people that were watching WOW started watching Everyday.

4. Darlene is a scientist and has measured the mass or capacity of some objects before and after a chemical reaction.

Object	Mass/capacity before	Mass/capacity after
Wax	600g	1.1lbs
Coal	1.5kg	3.7lbs
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Nitric acid	150ml	$\frac{1}{4}$ pint

Sort the objects into those which gained mass and those which lost mass/capacity. Use 1 pint  $\approx$  568ml and 1kg = 2.2lbs.

Gained mass/capacity

Wax, Nitric acid

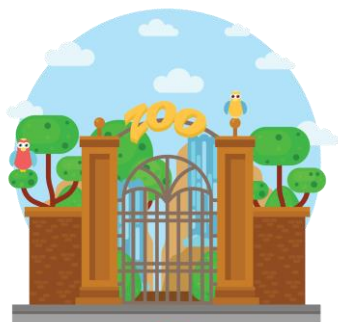
Lost mass/ capacity

Coal, Sulphur, Water











## Reasoning and Problem Solving – Mixed Problems

5. Julie wants to go to the zoo with her family for her 7<sup>th</sup> birthday. The prices depend on their ages.



ZOO

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28	71	73	11 years	36	27	86	38
weeks	months	years	5 months	years	months	months	years

Julie's mum, Barb, buys five of the tickets and spends £83.97. Whose tickets could she have bought? **Various possible answers, for example:**

**Her own, Julies, Jim's, Henry's and Freddie's.**

6. Wilma the witch orders ingredients to make potions.



Number of packs bought	Ingredient			
	Beetle wings (pack of 6)	Bee wings (pack of 8)	Snot (one 10ml bottle)	Frog legs (pack of 9)
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12-23	£1.50	£1.90	£15.70	£35
24 or more	£1	£1.25	£12.30	£32

A. She needs 1,153 beetle wings, 185 frog legs and 106ml of snot for a potion. What is the least expensive way to buy the ingredients? Explain your answer.

**She should buy 193 packs of beetle wings for £193, 21 packs of frog legs for £735 and 11 bottles of snot for £198, totalling £1,126.**

B. She currently buys 9 packs of bees wings every month for a ritual. She thinks she could save over £50 a year if she bought the same number of beetle wings each month instead. Is she correct? Explain your answer.

**No because she will only save £32.40 as she would spend £20.70 per month on bees wings and £18 a month on beetle wings.**