

# All Kinds of Word Problems

The Four Operations  
10 Questions, Answers and a Challenge

Year 6

# Year 6 Problems on the Four Operations

Name.....

Date..... Class .....

School .....



Please write your answer on the answer line provided. You can use the space provided below the question for working out if you need it.

- 1 Patrick is rowing across the sea to get to the nearest island for charity.

On day 1 he rowed 36 km.  
On day 2 he rowed 3 km less than day 1.  
On day 3 he rowed 3 km less than day 2.

If this pattern is repeated each day, how long will it take him to row 216 km?

↙

Answer .....

2 Oranges weigh 520 g for a bag of 4. They cost £1.60 per bag.

- a How many oranges would you get, if you ordered 4.16 kg for the local school?
- b How much would 4.16 kg of oranges cost?



Answer a .....

Answer b £.....

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3 At the start of the day Mr Baker, the baker, makes 3426 loaves of bread.

He delivers half of them to a local grocery store.

He then delivers  $\frac{2}{3}$  of what is left to a local sandwich shop.

How many loaves does he have left to sell in his bakery?



Answer .....

4

Assuming you want to have a larger amount of money, would you rather have 75% of £1000 or 90% of £800?



Answer .....  
.....

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5

Amy and Zoe are both between 40 and 60 years old.

Their ages are both multiples of 8.

The difference between their ages is 16.

The sum of the digits of their ages is 15.

What are Amy and Zoe's ages?



Answer .....  
.....

6

A factory produces bags of sweets over a week.

The column on the right shows how production from the previous day is increased or decreased. On Monday they produced 800. On Tuesday, this had increased by  $\frac{1}{2}$  to 1,200.

Can you complete the table?

Day	Amount produced	Increase or decrease in production
Monday	800	
Tuesday	1,200	Increase production by $\frac{1}{2}$
Wednesday		Increase production by $\frac{1}{2}$
Thursday		Decrease production by $\frac{1}{3}$
Friday		Decrease by 196
Saturday		Half of Friday
Sunday		Increase by 476
Total amount produced over the week		

7

Mrs Barber wants to buy a new carpet for her living room.

The length of the room is 1274 cm.

The width of the room is 1052 cm.

a Convert these measurements into metres.

b If the carpet only comes in full metre lengths, what size piece of carpet is Mrs Barber going to need to buy?



Answer a Length.....m Width.....m

Answer b .....

8

The cinema in town has special offers on 'Sale Saturday'. Normally the prices are:

Item	Prices (£)
Adult Ticket	8.50
Child Ticket	5.15
Drink	1.05
Popcorn	2.80
Chocolate	3.00
Pick 'N' Mix	2.74

Special offers for 'Sale Saturday' are:

For every 2 adult tickets purchased a child ticket is free.  
Every drink purchased one food item is then half price.

- a Can you work out how much it would cost for 6 adults and 8 children to get tickets for the film?
- b What is the lowest possible cost for 6 children and 8 adults to have a ticket and a drink and something to eat?

Answer a .....

Answer b .....

9

Write your chosen operation (+ – × ÷) into each of the boxes below to make the calculation correct.

You will need to use BODMAS.

$$8 \boxed{\phantom{0}} 3 \boxed{\phantom{0}} 9 = 33$$

$$12 \boxed{\phantom{0}} 4 \boxed{\phantom{0}} 6 \boxed{\phantom{0}} 6 = 24$$

$$15 \boxed{\phantom{0}} 3 \boxed{\phantom{0}} 5 \boxed{\phantom{0}} 9 = 41$$



10

A sequence can be generated by multiplying the previous term (number) by 5 and then subtracting 6.

The first term starts at 2.

To generate the second term we follow the rule which is  $(x 5 - 6)$ .

For example,  $2 \times 5 - 6 = 4$ .

So 4 becomes the second term.

a Can you generate the 3rd, 4th, 5th and 6th terms?

b Which terms have a difference of 1500?



Answer a 3rd term..... 4th term..... 5th term..... 6th term.....

Answer b .....

## Challenge Question!



Using all four operations and only prime numbers, see how many numbers you can make between 1 and 30.

For example,  $13 - 11 = 2$ .

For an extra challenge, can you use more than one operation in the calculation.

For example,  $13 \times 2 - 23 = 3$ .

How many numbers between 1 and 30 can you make?

Use the space provided below to write your number sentences.  
Then, list the numbers you can make on the answer line.



Answer .....

## Answer Sheet

- 1 By day 9 he would have rowed 216 km.

Days	Km rowed	Running Total
1	36	36
2	33	69
3	30	99
4	27	126
5	24	150
6	21	171
7	18	189
8	15	204
9	12	216

Content Domains: Cumulative totals (6C3, 6C4, 6C6, 6C8)

- 2 a. You would get 32 oranges.  
b. It would cost £12.80.

The table shows the calculations pupils could use:

Weight (g)	Number of oranges	Cost (£)
520	4	1.60
1040	8	3.20
2080	16	6.40
4160	32	12.80

Content Domains: Multiplication facts, Solving problems involving measure and money (6C3, 6C4, 6C8)

- 3 1713 loaves went to the grocery store, 1142 to the sandwich shop, leaving 571 for his own shop.

Content Domains: Problem solving using addition and subtraction, Finding fractions of amounts (6C3, 6C4, 6C6, 6C7a, 6C7c, 6C8)

- 4 75% of £1000 = £750 so this is the best choice.  
(90% of £800 = £720)

Content Domains: Finding percentages of amounts (6C3, 6C4, 6C6, 6C7a, 6C7c, 6C8)

5

40 and 56 years old.

#### Content Domain: Using multiplication facts (6C8)

6

Day	Amount produced	Increase or decrease in production
Monday	800	
Tuesday	1,200	Increase production by $\frac{1}{2}$
Wednesday	1,800	Increase production by $\frac{1}{2}$
Thursday	1,200	Decrease production by $\frac{1}{3}$
Friday	1,004	Decrease by 196
Saturday	502	Half of Friday
Sunday	978	Increase by 476
Total amount produced over the week		

#### Content Domains: Solving multi-step problems (6C4, 6C7a, 6C7b)

7

- a. The length of the room is 12.74 m.
- b. The width of the room is 10.52 m.
- c. She would need to buy a 13 m x 11 m piece of carpet.

#### Content Domains: Four operations, Estimation using measure (6C3, 6C4, 6C7a, 6C7b)

8

- a. The total cost is £76.75.

6 adults and 8 children = 6 adult tickets and 3 children free + 5 child tickets.  
 $(£8.50 \times 6 = £51, £5.15 \times 5 = £25.75)$

- b. Each drink and half price food item is as follows:

8 adults + 4 free children + 2 child tickets =  $(£8.50 \times 8) + (£5.15 \times 2) = £78.30$   
 Drink + Pick 'N' Mix (cheapest food item) =  $£1.05 + £1.37 = £2.42 \times 14 = £33.88$   
 Total =  $£78.30 + £33.88 = £112.18$

#### Content Domains: Four operations using money (6C3, 6C4, 6C7a, 6C7b, 6C8)

$$8 \times 3 + 9 = 33$$

9

$$1 \div 4 \times 6 + 6 = 24$$

$$15 \times 3 + 5 - 9 = 41$$

## Content Domain: Identifying order of operations (6C7c)

10

a. 3rd term = 14

4th term = 64

5th term = 314

6th term = 1564

b. The 6th and 4th term ( $1564 - 64 = 1500$ )

## Content Domains: Factors and multiples using algebra (6C5, 6C7a)

## Challenge Question

Any calculation that maintains the rule of only using prime numbers to find the answers 1 – 30. E.g.  $13 - 11 = 2$  or  $13 \times 2 - 23 = 3$  if more than one operation is used.

## Content Domains: Four operations, Estimation using measure (6C3, 6C4, 6C7a, 6C7b)