

All Kinds of Word Problems

Multiplication
10 Questions, Answers and a
Challenge

Year 5



THIRD SPACE
LEARNING

Year 5 Problems on Multiplication

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 Mark has created different calculations. He doesn't know if they are correct or not.

Can you help Mark by putting a \checkmark next to the correct statements?

Correct the calculations that are not right by writing out the correct mathematical statement on the answer line below.

a $7 \times 4 \times 2 > 9 \times 6 \times 1$

b $6 \times 4 \times 2 > 5 \times 6 \times 2$

c $12 \times 4 \times 2 < 12 \times 8$

d $5 \times 4 \times 3 = 5 \times 6 \times 2$



Answer

- 2 Can you complete the multiplication grid by writing the missing factors and products into the correct places?

x	5			12	6	
	25				30	
9		27	90			
	35			84		
					48	
			110			44



3 There are seven children in a class.
They have been asked to organise number cards from 1 - 40 into different groups.

- Amy is collecting multiples of 3.
- Ben is collecting prime numbers.
- Cathy is collecting square numbers.
- Dominic is collecting multiples of 5.
- Ellie is collecting factors of 40.
- Francis is collecting factors of 36.
- Glenn is collecting multiples of 4.

- a** Who gets the least number of cards?
- b** Who gets the most number of cards?
- c** Name two children who will have to share one card between them.



Answer a

Answer b

Answer c

4

Sam and Rachel are siblings.
 Sam's age is a multiple of 4.
 Rachel's age is a multiple of 3.
 There are 2 years between their ages.

When they multiply their ages together and then multiply the resulting number by their mum's age, the answer comes to 1728.

- a How old are Sam and Rachel?
 b How old is their mum?



Answer a Sam Rachel

Answer b

5

Two years ago Karen's age was a prime number.
 This year her age is a square number.
 How old could Karen be?



Answer

6 Amelie visits a local aquarium. She sees turtles with 4 legs, starfish with 5 legs and octopuses with 8 legs in the tank. She sees 84 legs altogether in the tank.

a How many of each sea creature is in the tank if there are exactly 14 sea creatures altogether?

b How many legs could be in the tank if she sees 25 sea creatures altogether?



Answer a

Answer b

7 Andy says that he can make all the prime and square numbers up to 40 using just two multiplication symbols and 3 sets of 0 - 9 digit cards.

For example, he could make the number sentence $9 \times 2 \times 2$ to make the square number 36.

Or, he could make the number sentence 13×1 to make the prime number 13. Is he correct? Give examples to prove it.



Answer

8

At a school fair refreshment area, visitors could buy a cup of tea for 72 p or a cup of coffee for 81 p. 325 cups of tea had been sold by the end of the fair.

a How much money was made from selling cups of tea?

b If £607.41 was made altogether by the end of the fair, how many cups of coffee must have been sold?



Answer a £.....

Answer b

9

Ellie's age is a factor of her grandma's age. Her grandma's age is a multiple of 7 and 8.

a How old could Ellie's grandma be?

b How old could Ellie be?



Answer a

Answer b

10

Gemma is a comic book fanatic. She buys them in bulk when she can. The table below can be used to work out how much each box of comics would cost her.

Comics	Cost per comic	She needs this amount of comics...
Armourman	65 p each	125
Planet Boy	42 p each	72
Super Slug	84 p each	98
Dark Madness	£1.59 each	540

Can you work out how much Gemma will spend on each comic if she buys the number she needs?



Answer Armourman: £..... Planet Boy: £.....

Super Slug: £..... Dark Madness: £.....

Challenge Question!

When we multiply a whole number by itself, we get a square number.
For example, 2^2 (2×2) gives us 4. So 4 is a square number.

When we multiply a whole number by itself three times, we get a cube number.
For example, 2^3 ($2 \times 2 \times 2$) gives us 8. So 8 is a cube number.

- a** If my answer is 12 when adding a cube number to a square number, what numbers did I add?
- b** If my answer is 44 when adding a cube number to a square number, what numbers did I add?
- c** If my answer is 829 when adding a cube number to a square number, what numbers did I add?
- d** If my answer is 329 when adding a cube number to a square number, what numbers did I add?



Answer a

Answer b

Answer c

Answer d

Answer Sheet

- 1 Correct: a. $7 \times 4 \times 2 > 9 \times 6 \times 1$
The remaining statements should have been corrected as shown below:
b. $6 \times 4 \times 2 < 5 \times 6 \times 2$
c. $12 \times 4 \times 2 = 12 \times 8$

Accept other corrections if the mathematical statement is true.

Content Domains: Multiplication facts using known facts to check answers (5C6a, 5C8a)

2

x	5	3	10	12	6	4
5	25	15	50	60	30	20
9	45	27	90	108	54	36
7	35	21	70	84	42	28
8	40	24	80	96	48	32
11	55	33	110	132	66	44

Content Domains: Multiplication facts using known facts to check answers (5C6a, 5C8a)

- 3
- a. Cathy gets the least number of cards.
 - b. Amy gets the most number of cards.
 - c. There are multiple combinations outlined below:
Amy has to share a card with everyone except for Ellie.
Ben has to share a card with everyone except for Cathy and Glenn.
Cathy has to share a card with everyone except for Ben.
Dominic has to share a card with everyone except for Francis.
Ellie has to share a card with everyone except for Amy.
Francis has to share a card with everyone except for Dominic.
Glenn has to share a card with everyone except for Ben.

Content Domain: Using multiples, Using primes and squares (5C8a)

- 4
- a. Sam is 8, Rachel is 6.
 - b. Their mum is 36.

Content Domain: Using multiples (5C8a)

- 5 Any square number that is 2 more than a prime number would be suitable here, for example 9 or 25.

Content Domains: Using primes and squares (5C8a, 5C8b)

- 6
- a. 4 turtles, 4 starfish, 6 octopuses

- b. Any combination that would give 25 sea creatures in total such as:
 8 turtles, 8 starfish, 9 octopuses would equal 144 legs
 Or
 10 turtles, 8 starfish, 7 octopuses would equal 136 legs
 Or
 4 turtles, 6 starfish, 15 octopuses would equal 166 legs

Content Domains: Using multiples and factors to solve a problem (5C8a, 5C8b, 5C8c)

- 7 Andy is correct as all the numbers can be created, some in more than one way.

Content Domains: Multiplying numbers up to 4 digits (5C7a)

- 8 a. £234 from selling tea.
 b. 461 coffees.

Content Domains: Multiplication using money, 5C6b, 5C7a, 5C8c

- 9 a. Her grandma is 56, or she could be 112.
 b. Ellie can be 1, 2, 4, 7, 8 or 14.

Content Domains: Factors and patterns (5C8a, 5C8c)

Comics	Cost per box (£)	Cost for the amount she needs (£)
Armourman	16.25	81.25
Planet Boy	7.56	30.24
Super Slug	11.76	82.32
Dark Madness	57.24	858.60

Content Domains: Multiplication using money (5C6b, 5C7a, 5C7b, 5C8c)

Challenge Question

- a. $2^2 + 2^3 = 12$
 Or
 $4 + 8 = 12$
 b. $6^2 + 2^3 = 44$
 Or
 $36 + 8$
 c. $10^2 + 9^3 = 829$
 Or
 $100 + 729$
 d. $7^2 + 7^3 = 392$
 Or
 $49 + 343$

Content Domains: Square numbers to solve a problem (5C8a, 5C8b)