THIRD SPACE LEARNING

Word Problems

11 multiplication questions to develop reasoning and problem solving skills

Grade 4

Questions

Name: ..... Date: .....

1 The factor pairs for 12 are:
1 and 12
2 and 6
3 and 4

a Can you find all the factor pairs for 36?

b Can you find all the factor pairs for 48?

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2 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 and 3 more starfish than octopuses?

b What is the greatest number of legs there could be in the tank if she sees 25 sea creatures altogether?

3 Complete the multiplication grid by writing the missing factors and products into the correct places.

×	5			12		
	25				30	
		27	90			
	35			84		
					48	
			110			44

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 mom's age, the answer comes to 1,728.

a How old are Sam and Rachel?

b How old is their mom?

5 Carly has created a multiplication calculation. It is as follows:
$2 \times 2 \times 2 \times 2 \times 2 \times 2$
She tells Liam that she has a number that when multiplied by itself gives the same answer as the calculation above.

a What is the answer to both of Carly's calculations?

b What number did Carly multiply by itself to get this answer?

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6 Marcus has booked his flight to Paris. His booking number is 12 digits long. The last 3 digits make up a common multiple of 9 and 12 that lies between 301 and 350.

What are the last 3 digits?

Answer

7 Bill scored 64 points in a game. He scores 6 or 4 points at a time.
For example, he could have scored ten 6s and one 4 (60 + 4 = 64).

a Find two other combinations of 6s and 4s Bill could have scored.

b How many possible combinations of 6s and 4s could Bill have scored to get a score of 64?

8 Beatrice has two types of blocks.
One block is 3m by 3m, the other block is 2m by 2m.
She needs to create a patio for a castle using the blocks.
The patio measures 12m by 6m.

a If she was only using 3m by 3m blocks, how many would she need to use?

b If she was only using 2m by 2m blocks, how many would she need to use?

9 Anya is thinking of a number that Lily has to guess. Lily has the following clues:

- It is a 2-digit number.
- It is a multiple of 9.
- The closest prime number is one less than it.
- The difference between the two digits is 9.

What is Anya's number?

Answer

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10 There are seven children in a class.
They have been asked to organize 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?

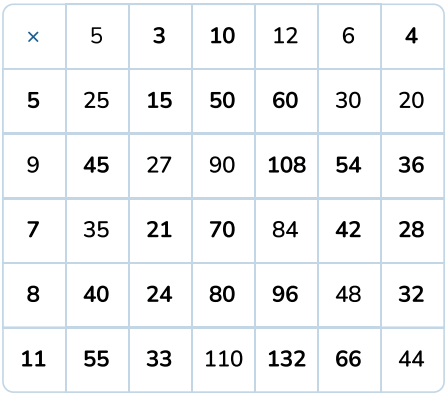
c Name two children who will have to share one card between them.

Challenge Question!

Patek has a set of 0 - 9 digit cards.
She says she can create any number from 0 to 30 using single digit by single digit multiplication calculations, for example $4 \times 5 = 20$.
She can use the digits more than once but she can only use multiplication.
Is Patek's statement true or false? Use the space provided to investigate and then write your conclusion below.

Answer

Answers

Question number	Question	Answers	Standard
1	The factor pairs for 12 are: 1 and 12 2 and 6 3 and 4 a) Can you find all the factor pairs for 36? b) Can you find all the factor pairs for 48?	a) Factor pairs for 36: 1 × 36, 2 × 18, 3 × 12, 4 × 9, 6 × 6. b) Factor pairs for 48: 1 × 48, 2 × 24, 3 × 16, 4 × 12, 6 × 8.	4.OA.B.4
2	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)What is the greatest number of legs there could be in the tank if she sees 25 sea creatures altogether?	a) 5 Octopuses, 8 Starfish, 1 Turtle. b) 25 Octopuses = 25 × 8 = 200 legs.	4.OA.B.4
3	Can you complete the multiplication grid by writing the missing factors and products into the correct places?		4.NBT.B.5

×	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

Question number	Question	Answers	Standard
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 mom's age, the answer comes to 1,728. a) How old are Sam and Rachel? b) How old is their mom?	a) Sam is 8, Rachel is 6. b) 1,728 ÷ 48 = 36 Their mom is 36.	4.OA.A.3
5	Carly has created a multiplication calculation. It is as follows: 2 × 2 × 2 × 2 × 2 × 2 She tells Liam that she has a number that when multiplied by itself gives the same answer as the calculation above. a) What is the answer to both of Carly's calculations? b) What number did Carly multiply by itself to get this answer?	a) 64 b) Carly multiplied 8 by itself (8 × 8 = 64)	4.NBT.B.5
6	Marcus has booked his flight to Paris. His booking number is 12 digits long. The last 3 digits make up a common multiple of 9 and 12. that lies between 301 and 350. What are the last 3 digits?	324	4.OA.B. 4

<table>
<tr><th>Question number</th><th>Question</th><th>Answers</th><th>Standard</th></tr>
<tr><td>7</td><td>Bill scored 64 points in a game. He scores 6 or 4 points at a time.
For example, he could have scored ten 6s and one 4 (60 + 4 = 64).
a) Find two other combinations of 6s and 4s Bill could have scored.
b) How many possible combinations of 6s and 4s could Bill have scored to get a score of 64?</td><td>a) These are the possible combinations:<table><tr><th>4s</th><th>6s</th></tr><tr><td>1 × 4</td><td>10 × 6</td></tr><tr><td>4 × 4</td><td>8 × 6</td></tr><tr><td>7 × 4</td><td>6 × 6</td></tr><tr><td>13 × 4</td><td>2 × 6</td></tr></table>b) There are five different combinations.</td><td>4.OA.B.4</td></tr>
<tr><td>8</td><td>Beatrice has two types of blocks. One block is 3m by 3m, the other block is 2m by 2m. She needs to create a patio for a castle using the blocks. The patio measures 12m by 6m.
a) If she was only using 3m by 3m blocks, how many would she need to use?
b) If she was only using 2m by 2m blocks, how many would she need to use?</td><td>a) 8 of the 3m by 3m blocks
b) 18 of the 2m by 2m blocks</td><td>4.NBT.B.5</td></tr>
<tr><td>9</td><td>Anya is thinking of a number that Lily has to guess. Lily has the following clues:
It is a 2-digit number.
It is a multiple of 9.
The closest prime number is one less than it.
The difference between the two digits is 9.
What is Anya’s number?</td><td>90</td><td>4.OA.B.4</td></tr>
</table>

Question number	Question	Answers	Standard
10	There are seven children in a class. They have been asked to organize 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.	a) Cathy gets the least number of cards. b) Amy gets the most number of cards. c) The following **cannot** share any card with each other: Ben and Cathy Ben and Glenn Amy and Ellie Dominic and Francis All other combinations can share at least one card.	4.OA.B.4
Challenge Question	Patek has a set of 0 - 9 digit cards. She says she can create any number from 0 to 30 using single digit by single digit multiplication calculations, for example $4 \times 5 = 20$. She can use the digits more than once but she can only use multiplication. Is Patek's statement true or false? Use the space provided to investigate and then write your conclusion on the answer line provided below.	False. The double digit prime numbers (11, 13, 17, 19, 23 and 29) cannot be made; neither can the numbers 22 or 26.	4.NBT.B.5

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