THIRD SPACE LEARNING

Word Problems

11 multiplication questions to develop reasoning and problem solving skills

Grade 5

Questions

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

1 Amit has replaced some digits in his written multiplication with letters.
Can you work out which digit each of the letters represent?

	T	L	3	P
×				P
L	T	8	L	P

P L T

2 Cycle Chris is training for the Tour de France.
He cycles 134km every day for the first 2 weeks.
Over the third and fourth week of training, he cycles 168km every day.
In the final two weeks, he does a daily cycle of 198km.
How far does he cycle altogether?

Answer

3 Jay is in 3rd grade. He wants to buy cookies for all 60 children in his grade.
He needs to know which offer would save him the most money.
He can buy the cookies in boxes of 6, 7, 8 and 9.
He cannot mix and match the cookie boxes so he must buy cookie boxes of one number only.
A box of 6 cookies would cost him $0.72.
A box of 7 cookies would cost him $0.77.
A box of 8 cookies would cost him $0.96.
A box of 9 cookies would cost him $1.08.
What is the least amount of money Jay can spend on cookies for his grade?

Answer

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4 Anthony loves baking chocolate cake. His recipe is enough to feed four people.
It includes 345g of flour and 139g of sugar.

a If he was feeding 12 people, how much flour and sugar would he need?

Answer

b If he was feeding 36 people, how much flour and sugar would he need?

Answer

5 Mrs. Harvey was buying gifts for her class of 28 children at the end of the year.
She bought pencils, erasers, sharpeners and pencil cases for each child.
They were on special offer and cost $10.79 per set of four items.
How much did she spend?

Answer

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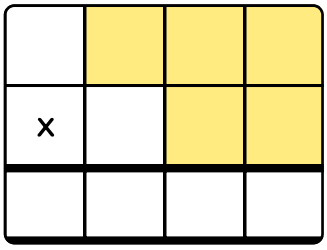
6 Janet has digit cards from 1 - 6. She needs to use them to make a three digit number and a two digit number that when multiplied together make a four digit number.

a Complete her calculation by filling in the grid below. You can only use each digit once.



b What is the smallest answer Janet can make that has four digits?

Answer

c What is the largest answer Janet can make that has four digits?

Answer

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 × 2 × 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

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8 At a school fair refreshment area, visitors could buy a cup of tea for $0.72 or a cup of coffee for $0.81. 325 cups of tea had been sold by the end of the fair.

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

Answer

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

Answer

9 Olive has been given this problem by her teacher.
The three digit number is odd.
Can you write the missing digits into the boxes?

		7	5	
x				6
	4		4	

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	No. of comics needed	Cost
Amourman	$0.65 each	125	
Planet Boy	$0.42 each	72	
Super Slug	$0.84 each	98	
Dark Madness	$1.59 each	540	

How much money does Gemma spend in total on comics?

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 x 2 x 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?

Answer

b If my answer is 44 when adding a cube number to a square number, what numbers did I add?

Answer

c If my answer is 829 when adding a cube number to a square number, what numbers did I add?

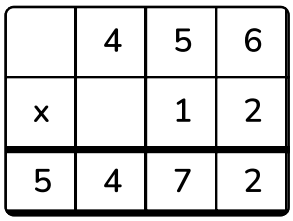
Answer

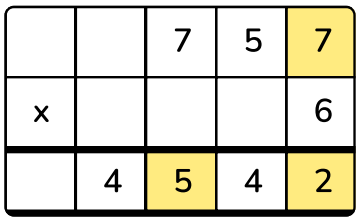
d If my answer is 392 when adding a cube number to a square number, what numbers did I add?

Answer

Answers

Question number	Question	Answers	Standard
1	Amit has replaced some digits in his written multiplication with letters. Can you work out which digit each of the letters represent? TL3P × P = LT8LP	P = 6, L = 1, T = 2	5.NBT.B.5
2	Cycle Chris is training for the Tour de France. He cycles 134km every day for the first 2 weeks. Over the third and fourth week of training, he cycles 168km every day. In the final two weeks, he does a daily cycle of 198km. How far does he cycle altogether?	7,000km in total. 1,876km in the first 2 weeks + 2,352km for the second 2 weeks + 2,772km for the third 2 weeks.	5.NBT.B.5
3	What is the least amount of money Jay can spend on cookies for his grade?	$6.93 is the least Jay can spend (this would get him 9 boxes of 7 cookies). 10 boxes of 6 cookies cost $7.20 9 boxes of 7 cookies cost $6.93 8 boxes of 8 cookies cost $7.68 7 boxes of 9 cookies cost $7.56 So buying 9 boxes of 7 cookies is the best offer.	5.NBT.B.7

Question number	Question	Answers	Standard
4	Anthony loves baking chocolate cake. His recipe is enough to feed four people. It includes 345g of flour and 139g of sugar. a) If he was feeding 12 people, how much flour and sugar would he need? b) If he was feeding 36 people, how much flour and sugar would he need?	a) For 12 people, he'll need 1,035g of flour and 417g of sugar. b) For 36 people, he'll need 3,105g of flour and 1,251g of sugar.	5.NBT.B.5
5	Mrs. Harvey was buying gifts for her class of 28 children at the end of the year. She bought pencils, erasers, sharpeners and pencil cases for each child. They were on special offer and cost $10.79 per set of four items. How much did she spend?	$302.12	5.NBT.B.7
6	Janet has digit cards from 1 - 6. She needs to use them to make a three digit number and a two digit number that when multiplied together make a four digit number. a) Complete her calculation by filling in the grid below. You can only use each digit once. b) What is the smallest answer Janet can make that has four digits? c) What is the largest answer Janet can make that has four digits?	Any correct combination that creates a 4 digit number from multiplying a three digit number and a 2 digit number together made from the digits 1 - 6, such as:  a) The smallest answer is 3,185 made from 245 × 13. b) The largest answer is 9,645 made from 643 × 15.	5.NBT.B.5

Question number	Question	Answers	Standard
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.	Andy is correct as all the numbers can be created, some in more than one way.	5.NBT.B.5
8	At a school fair refreshment area, visitors could buy a cup of tea for \$0.72 or a cup of coffee for \$0.81. 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?	a) \$234 from selling tea. b) 461 cups of coffee. 607.41 - 234 = 373.41 373.41 ÷ 0.81 = 37341 ÷ 81 = 461 coffees	5.NBT.B.7
9	Olive has been given this problem by her teacher. The three digit number is odd. Can you write the missing digits into the boxes?		5.NBT.B.5

<table>
<tr><th>Question number</th><th>Question</th><th>Answers</th><th>Standard</th></tr>
<tr><td>10</td><td>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.
How much money does Gemma spend in total on comics?</td><td><table><tr><th>Comics</th><th>Cost ($)</th></tr><tr><td>Amourman</td><td>81.25</td></tr><tr><td>Planet Boy</td><td>30.24</td></tr><tr><td>Super Slug</td><td>82.32</td></tr><tr><td>Dark Madness</td><td>858.60</td></tr></table></td><td>5.NBT.B.7</td></tr>
<tr><td>Challenge Question</td><td>When we multiply a whole number by itself, we get a square number.
For example, 2^2
2 x 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 392 when adding a cube number to a square number, what numbers did I add?</td><td>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 $49 + 343$</td><td>5.NBT.B.5</td></tr>
</table>

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