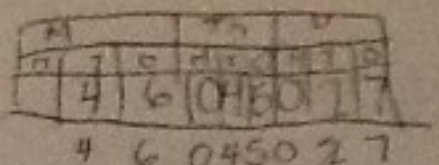
Whole Numbers Unit Test

Use the tools in the classroom to help you solve the problems unless otherwise indicated.

1. Which is the correct way to write 40 000 000 + 6 000 000 + 40 000 + 5 000 + 20 + 7 in standard form?

46 045 027

a) 46 045 027
b) 40 645 027
c) 46 064 527
d) 46 405 027



2. What is the value of the underlined digit in 78 903 241?

78 903 241
12 345
900 000

a) 90 000
b) 9 000 000
c) 9 000
d) 900 000

3. What is the lowest common multiple of 6 and 10?

a) 60
b) 30
c) 2
d) 40

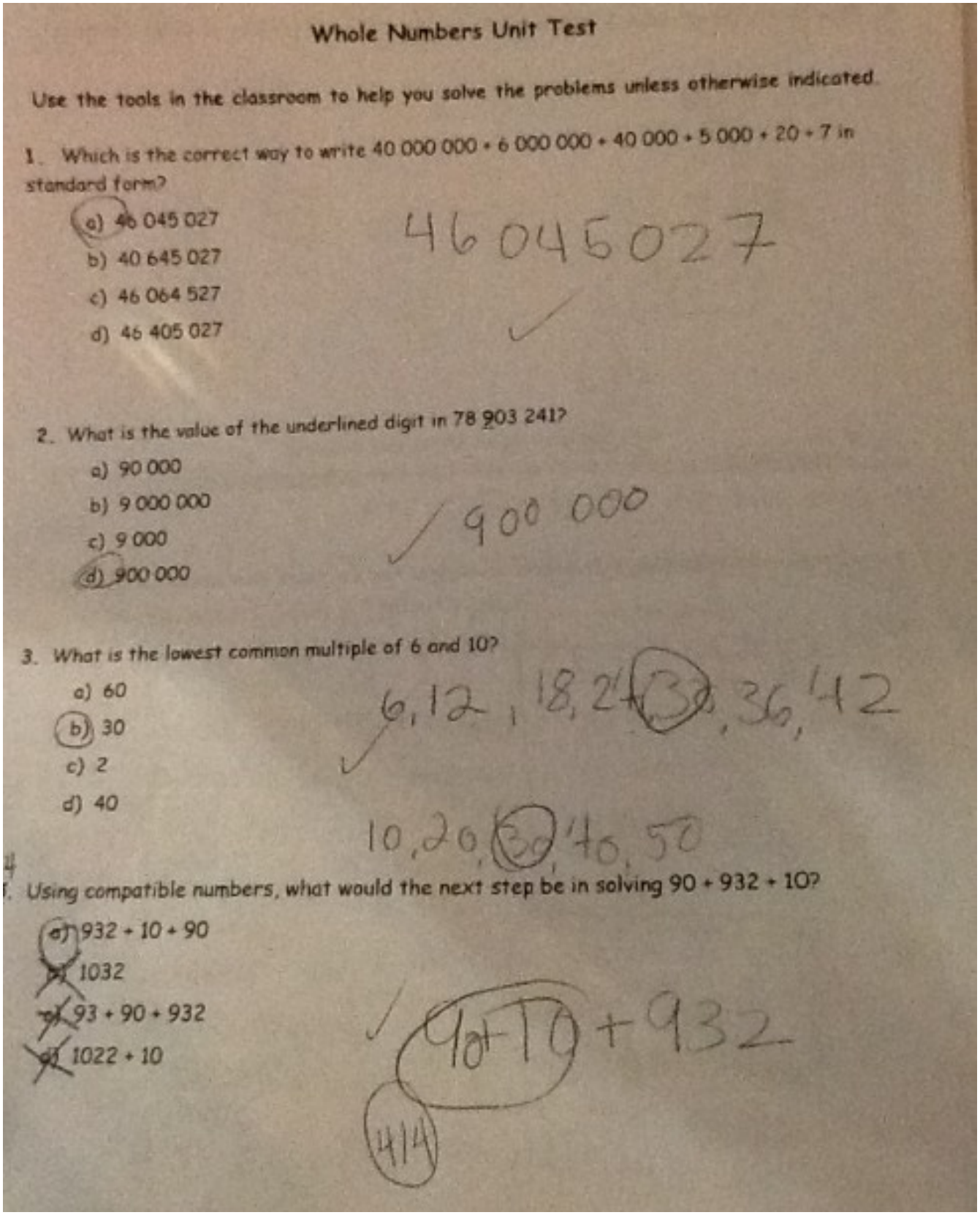
6, 12, 18, 24, 30
10, 20, 30

Using compatible numbers, what would the next step be in solving 90 + 932 + 10?

a) 932 + 10 + 90
b) 1032
c) 93 + 90 + 932
d) 1022 + 10

4/4

Another Possible Way To Show The Answers For The Multiple Choice Questions:



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a) 46 045 027
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46 045 027 ✓

2. What is the value of the underlined digit in 78 903 241?

a) 90 000
b) 9 000 000
c) 9 000
d) 900 000

✓ 900 000

3. What is the lowest common multiple of 6 and 10?

a) 60
b) 30
c) 2
d) 40

6, 12, 18, 24, 30, 36, 42 ✓

10, 20, 30, 40, 50

4. Using compatible numbers, what would the next step be in solving 90 + 932 + 10?

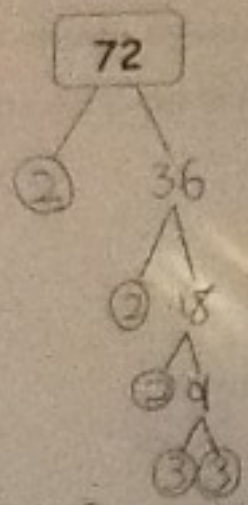
a) 932 + 10 + 90
b) 1032
c) 93 + 90 + 932
d) 1022 + 10

✓ 90 + 10 + 932

414

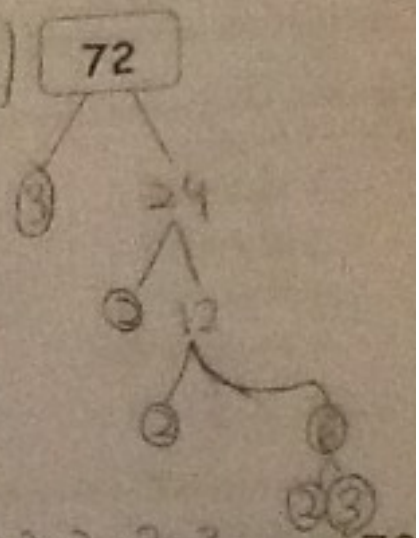
6. Show two different ways to represent the number 72 as a product of prime factors.

a)



2×2×2×3×3 = 72 ✓

b)



2×2×2×3×3 = 72

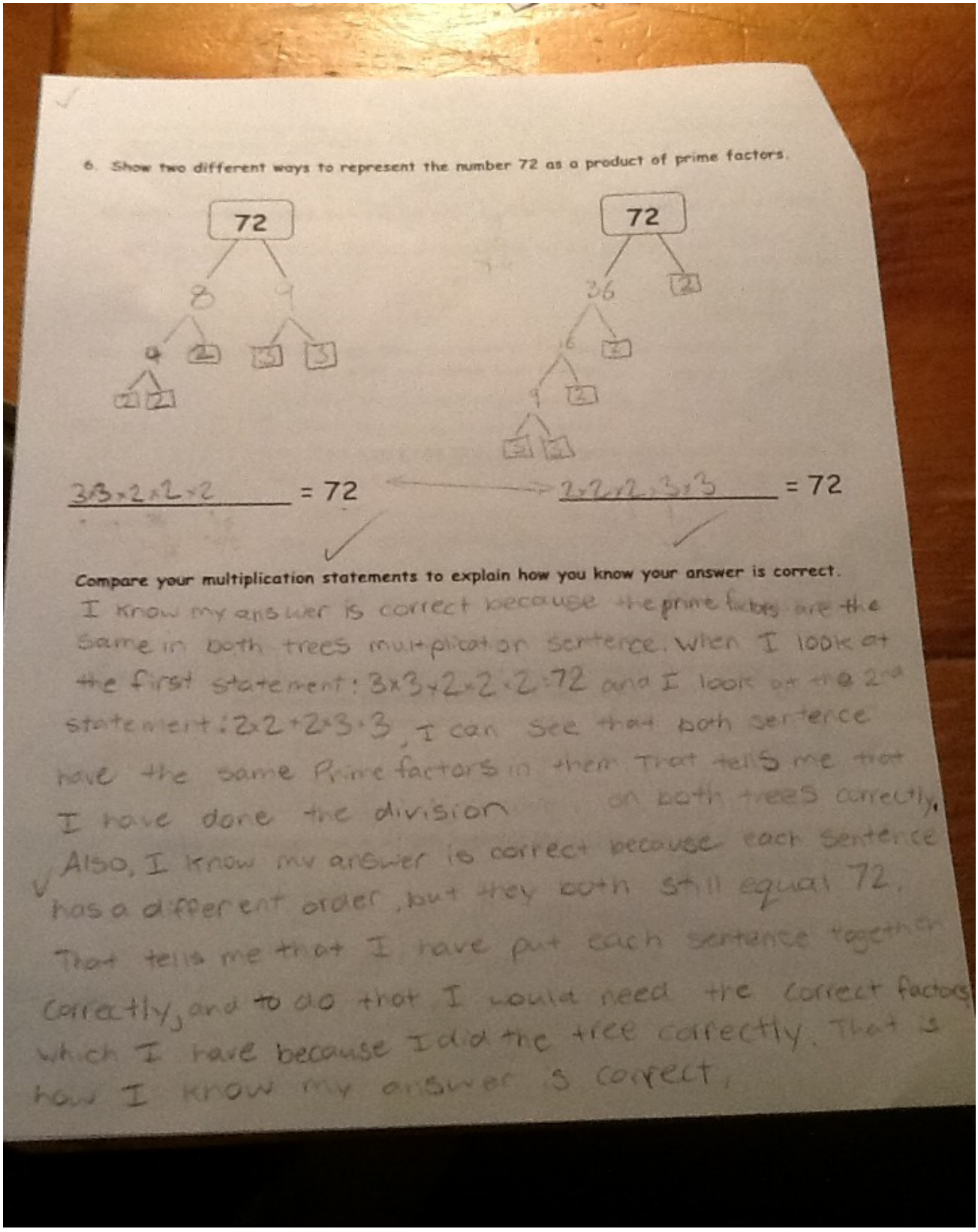
Compare your multiplication statements to explain how you know your answer is correct.

a) 2×2×2×3×3=72 b) 2×2×2×3×3=72 I know my answer is corect because both my multiplication statements are the same and they both equal 72:

a) =2×2×2×3×3
=4×2×3×3
=8×3×3
=24×3
=72

b) =2×2×2×3×3
=4×2×3×3
=8×3×3 ✓
=24×3 ✓
=72

Another Possible Way To Show The Answers For The Factor Tree Questions:



6. Show two different ways to represent the number 72 as a product of prime factors.

72 → 8 × 9 → 2 × 2 × 2 × 3 × 3 = 72

72 → 36 × 2 → 6 × 6 × 2 → 2 × 3 × 2 × 3 × 2 = 72

Compare your multiplication statements to explain how you know your answer is correct.

I know my answer is correct because the prime factors are the same in both trees multiplication sentence. When I look at the first statement: 3x3x2x2x2=72 and I look at the 2nd statement: 2x2x2x3x3, I can see that both sentence have the same Prime factors in them. That tells me that I have done the division on both trees correctly. Also, I know my answer is correct because each sentence has a different order, but they both still equal 72. That tells me that I have put each sentence together correctly, and to do that I would need the correct factors which I have because I did the tree correctly. That is how I know my answer is correct.

7. Solve each of the following equations: No Calculator

1) $15 \times 2 \div 6 + 4 - 2 =$

$= 30 \div 6 + 4 - 2$

$= 5 + 4 - 2$

$= 9 - 2$

$= 7$ ✓

2) $(15 \times 2) \div 6 + 4 - 2 =$

$= 30 \div 6 + 4 - 2$

$= 5 + 4 - 2$

$= 9 - 2$

$= 7$ ✓

3) $15 \times 2 \div (6 + 4) - 2 =$

$= 15 \times 2 \div 10 - 2$

$= 30 \div 10 - 2$

$= 3 - 2$

$= 1$ ✓

BDMAS

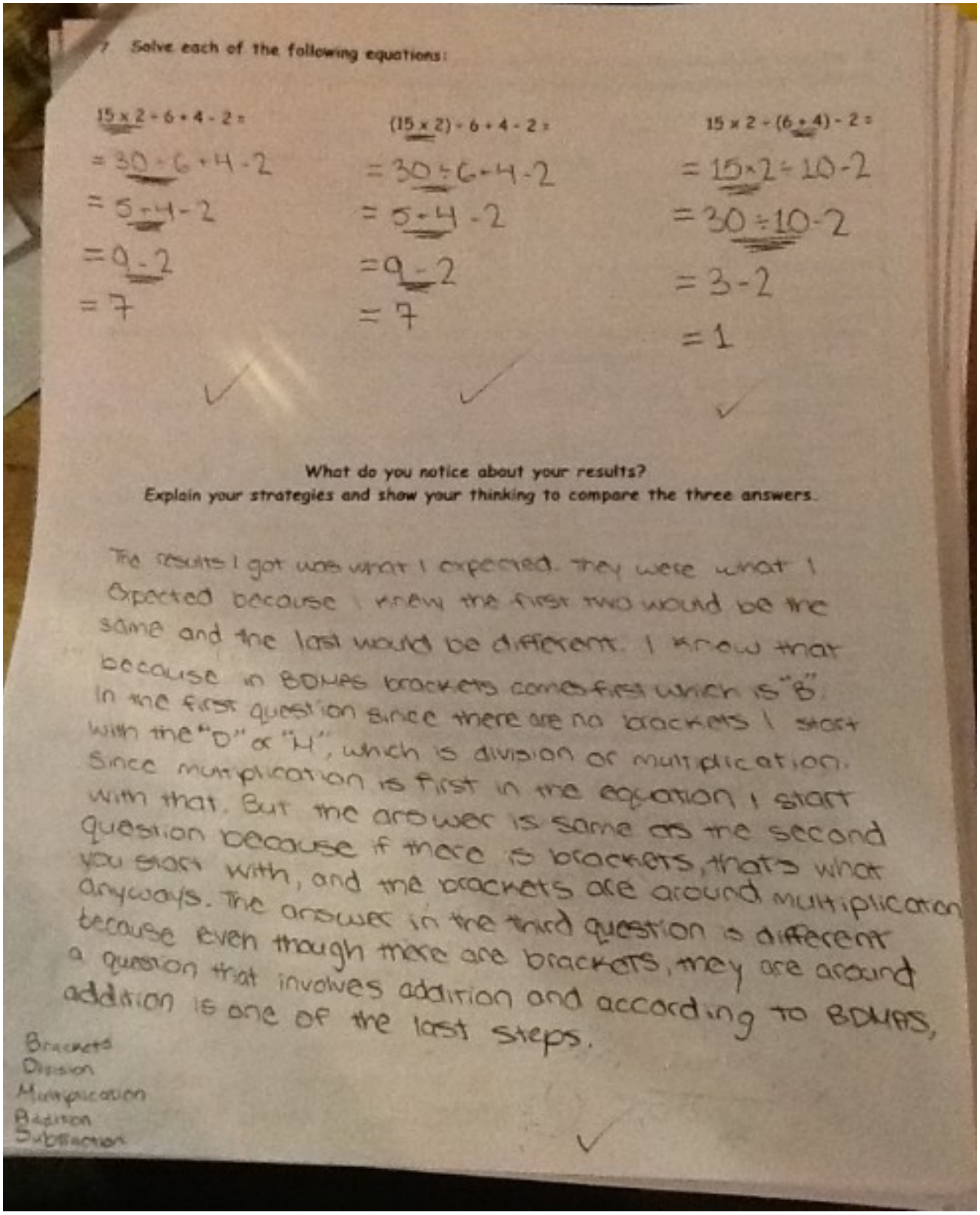
(I am using BDMAS)

What do you notice about your results? Explain your strategies and show your thinking to compare the three answers.

Wow! What a detailed response!

Something I notice about my results was that the first 2 questions have the same answer, but the third one doesn't. This happened because of BDMAS. So for the first two questions, I did 15×2 first. Even without the brackets, the multiplication comes first. That gave me 30, which changed the question to $30 \div 6 + 4 - 2$. Next, I do the D in bdmas, division, $30 \div 6 = 5$, and that answer changed the question to $5 + 4 - 2$. Then I do the A in bdmas, addition, $5 + 4 = 9$, and that makes the question $9 - 2$. Finally, I do the S in bdmas, subtraction, $9 - 2 = 7$, and 7 is our answer because there are no more operations to do. We got a different answer in the 3rd question because the order of the operations changed. In bdmas, you always do the B (brackets) first if there are any. So I do $6 + 4$ first, even though addition usually isn't the first operation. $6 + 4 = 10$, so that changes the question to $15 \times 2 \div 10 - 2$. The question is now totally different because of the brackets. Now, I continue on in BDMAS: So I do the M (multiplication), because it comes before division in this equation. $15 \times 2 = 30$, and that makes the question $30 \div 10 - 2$. Next I do the division. Then after that I will do the subtraction. $30 \div 10 = 3$, so that changes the question to $3 - 2$. $3 - 2$ equals 1, so the final answer is one instead of seven. ✓

A Second Solution To This Problem:



7 Solve each of the following equations:

$15 \times 2 \div 6 + 4 - 2 =$

$= 30 \div 6 + 4 - 2$

$= 5 + 4 - 2$

$= 9 - 2$

$= 7$

$(15 \times 2) \div 6 + 4 - 2 =$

$= 30 \div 6 + 4 - 2$

$= 5 + 4 - 2$

$= 9 - 2$

$= 7$

$15 \times 2 \div (6 + 4) - 2 =$

$= 15 \times 2 \div 10 - 2$

$= 30 \div 10 - 2$

$= 3 - 2$

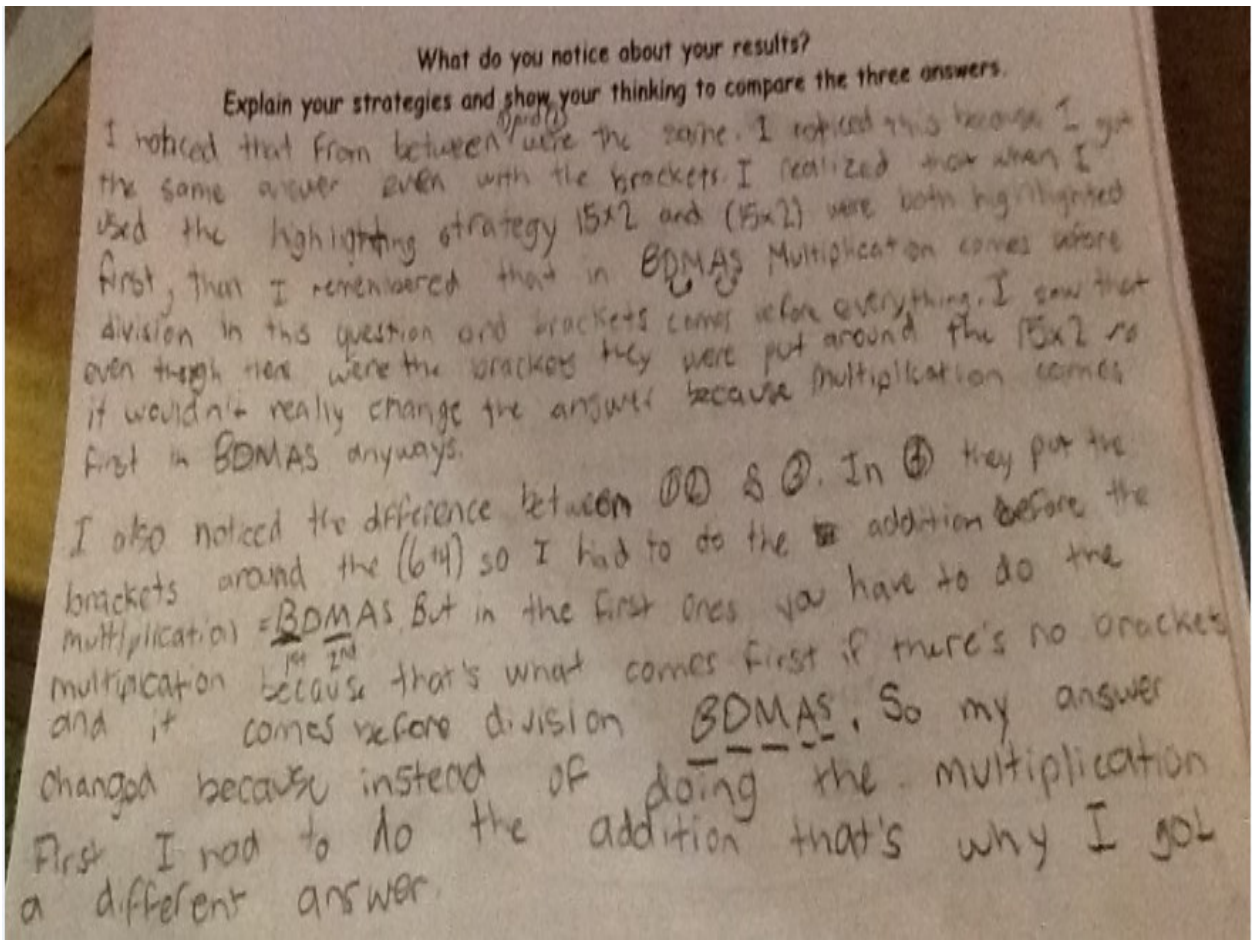
$= 1$

What do you notice about your results?
Explain your strategies and show your thinking to compare the three answers.

The results I got was what I expected. They were what I expected because I knew the first two would be the same and the last would be different. I knew that because in BDMAS brackets comes first which is "B". In the first question since there are no brackets I start with the "D" or "M", which is division or multiplication. Since multiplication is first in the equation I start with that. But the answer is same as the second question because if there is brackets, that's what you start with, and the brackets are around multiplication anyways. The answer in the third question is different because even though there are brackets, they are around a question that involves addition and according to BDMAS, addition is one of the last steps.

Brackets
Division
Multiplication
Addition
Subtraction

A Second Possible Explanation To This Problem:



What do you notice about your results?

Explain your strategies and show your thinking to compare the three answers.

I noticed that from between ① & ② were the same. I noticed this because I got the same answer even with the brackets. I realized that when I used the highlighting strategy 15×2 and (15×2) were both highlighted first, then I remembered that in BDMAS Multiplication comes before division in this question and brackets come before everything. I saw that even though there were the brackets they were put around the 15×2 so it wouldn't really change the answer because multiplication comes first in BDMAS anyways.

I also noticed the difference between ① & ③. In ③ they put the brackets around the (6+4) so I had to do the addition before the multiplication =BDMAS. But in the first ones you have to do the multiplication because that's what comes first if there's no brackets and it comes before division BDMAS. So my answer changed because instead of doing the multiplication first I had to do the addition that's why I got a different answer.

8. Delaney's cell phone plan gives her 300 text messages a month. Emily's cell phone plan gives her 3000 text messages a year. So far they have used the following number of messages.

Month	Delaney's Number of Text Messages	Emily's Number of Text Messages
January	298	202
February	276	251
March	287	307
April	248	214

Who sent the most text messages from the start of January to the end of April? Show your work and explain your thinking.

2+3+2=11

D - 298 276 287 248 → 1109

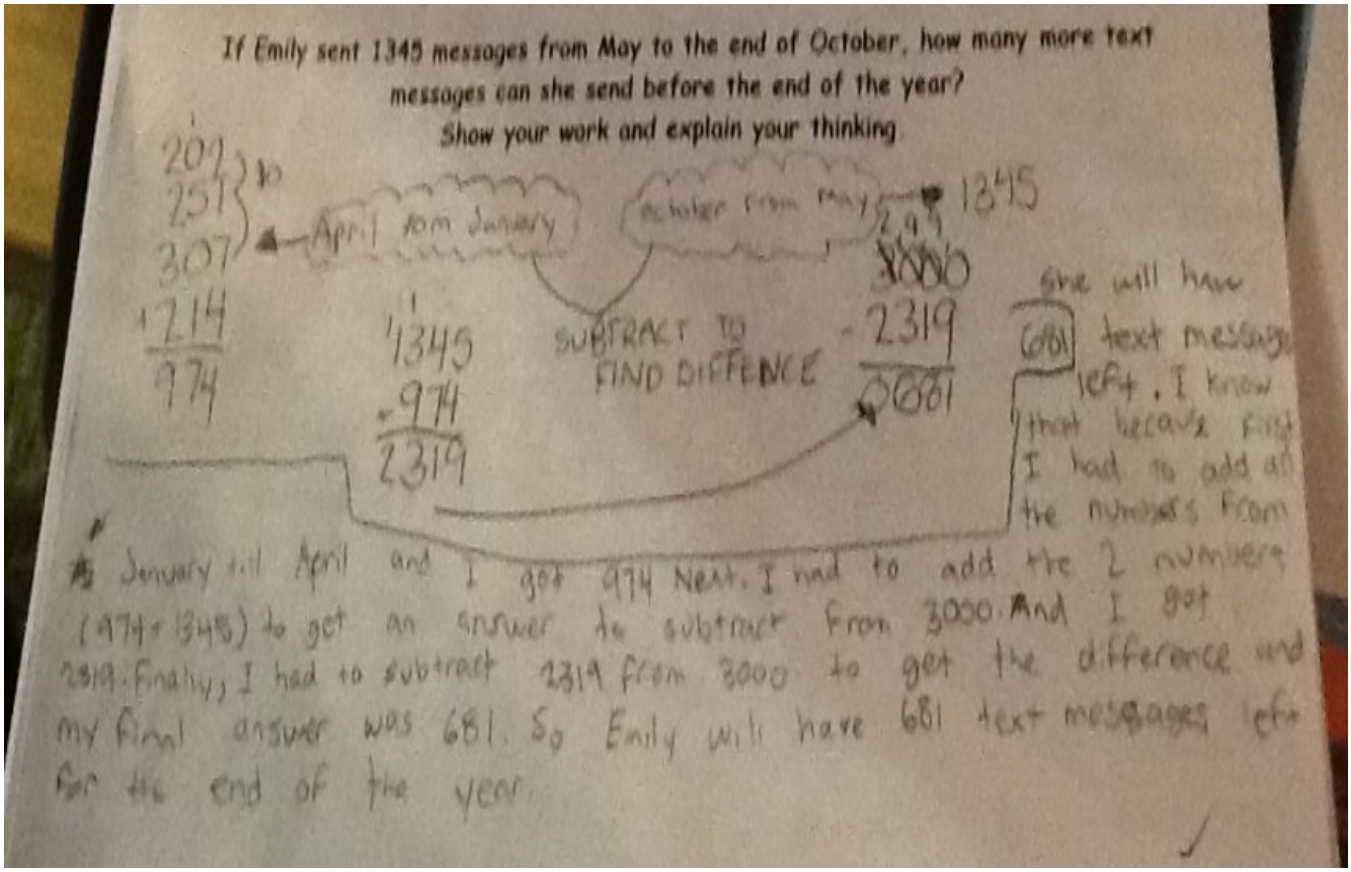
298+2 276+4 287+3 248+2
300 + 280 + 290 + 250 = 1120
- 11
1109

E - 202 251 307 214 → 974

I know that Delaney has sent more text messages than Emily. I know that because when I added up both of their results/data I saw that Delaney had 1109 and Emily had 974 and I know that 1109 is bigger than 974. To check my work I subtracted them to find the difference 1109 - 974 = 135. So I know that Delaney had 135 more text messages than Emily.

0'0
1109
- 974
0135

If Emily sent 1345 messages from May to the end of October, how many more text messages can she send before the end of the year?
Show your work and explain your thinking



I know that because first I had to add all the numbers from January till April and I got 974 Next. I had to add the 2 numbers (974+1345) to get an answer to subtract from 3000. And I got 2319. Finally, I had to subtract 2319 from 3000 to get the difference and my final answer was 681. So Emily will have 681 text messages left for the end of the year.