Reasoning and Problem Solving
Step 9: Wholes and Decimals

National Curriculum Objectives:

Mathematics Year 5: (5F10) Solve problems involving number up to three decimal places
Mathematics Year 5: (5M9a) Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Word problems involving subtraction of decimals and whole numbers. Including tens, ones and tenths in the context of money; up to one exchange.
Expected Word problems involving subtraction of decimals and whole numbers. Including tens, ones, tenths and hundredths; up to two exchanges.
Greater Depth Word problems involving subtraction of decimals and whole numbers. Including hundreds, tens, ones, tenths and hundredths; multiple exchanges.

Questions 2, 5 and 8 (Reasoning)
Developing Decide if the missing parts of a column addition involving decimals and whole numbers has been solved correctly. Including tens, ones and tenths; up to one exchange.
Expected Decide if the missing parts of a column addition involving decimals and whole numbers has been solved correctly. Including hundreds, tens, ones, tenths and hundreds; up to 2 exchanges.
Greater Depth Decide if the missing parts of a column addition involving decimals and whole numbers has been solved correctly. Including hundreds, tens, ones, tenths and hundreds; multiple exchanges.

Questions 3, 6 and 9 (Reasoning)
Developing Explain who has the correct answer when solving a word problem involving addition of two wholes and two decimals. Single exchange only.
Expected Explain who has the correct answer when solving a word problem involving addition of two wholes and two decimals. Up to two exchanges.
Greater Depth Explain who has the correct answer when solving a word problem involving addition of two wholes and two decimals. Multiple exchanges.

More Year 5 Decimals resources.

Did you like this resource? Don't forget to review it on our website.

Wholes and Decimals

1a. Sam has £9 to spend. She buys oil, eggs and flour. How much did she have left?

£0.90

£1


£2.80


£2.10

£4.30

What else could she buy?

D

PS

1b. Tom has £58 to spend. He buys a rocking horse, a yoyo and a toy tractor. How much did he have left?


£5.10


£30


£12.40


£21


£4.20

What else could he buy?

D

PS

2a. Susie thinks the missing digits are 2 and 9.

	6	9	•	0
+	2		•	
		1	•	2

Is she correct? Prove it.

D

R

2b. Pablo thinks the missing digits are 6, 3.

	4		•	1
+	2	6	•	0
		7	•	

Is he correct? Prove it.

D

R

3a. Blair and Nate are measuring how far they can kick a ball. They each have two attempts and kick the ball 31.2m, 11.2m, 34m and 23m.


Blair

We kicked the ball 100m.

We kicked the ball less than 100m.


Nate

Who is correct? Explain your answer.

D

R

3b. Dan and Dorota measured the height of the plants in their kitchen. They found that the plants were 10cm, 13.9cm, 22.2cm and 31cm.


Dorota

The total height of all the plants is 77.1cm.

The total height of all the plants is more than 77.1cm.


Dan

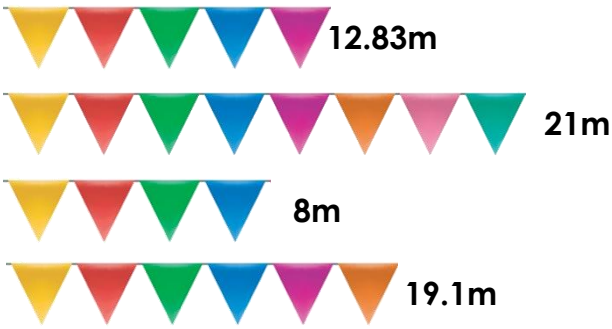
Who is correct? Explain your answer.

D

R

Wholes and Decimals

4a. Hannah has 75m of bunting. She cuts off these lengths for her friends. How much bunting does she have left?

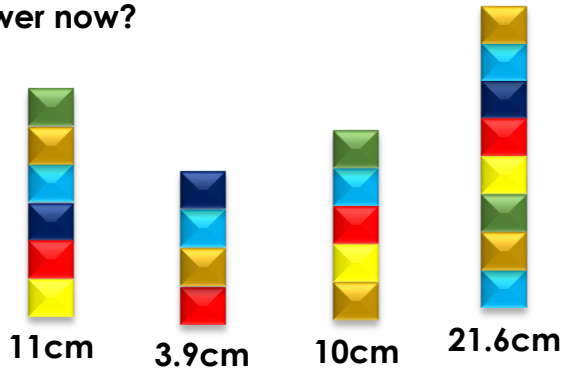


What is the biggest length she could cut again?

(not to scale)

PS

4b. Chris builds a 62cm tower of blocks. He takes off these pieces. How tall is his tower now?



What is the largest piece he could take off again?

(not to scale)

PS

5a. Jameela thinks the missing digits are 3, 4 and 1.

	1	3	4	• 0	0
+			7	•	1
	1	6		• 4	

Is she correct? Prove it.

R

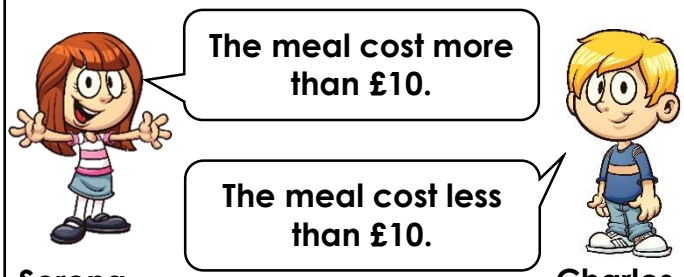
5b. Caleb thinks the missing digit is 6.

	2		3	•	6
+	3	5	1	• 0	0
		1	4	• 6	

Is he correct? Prove it.

R

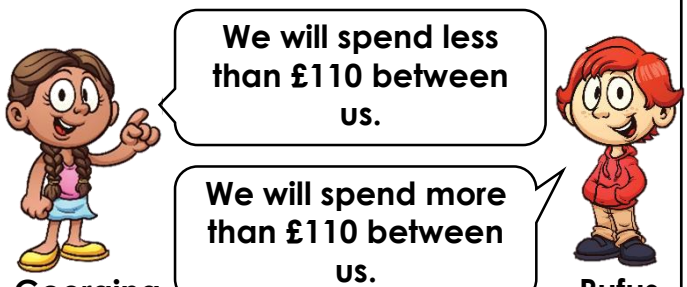
6a. Serena and Charles have fish and chips for dinner. They each buy fish for £3, chips for £1.24 and a bottle of water for £0.85. Charles also has a side of mushy peas for 50p.



Who is correct? Explain your answer.

R

6b. Georgina and Rufus both have a new dog. They both buy food for £21.64, a bowl for £5 and a lead for £18.92. Rufus also buys a collar for £12.

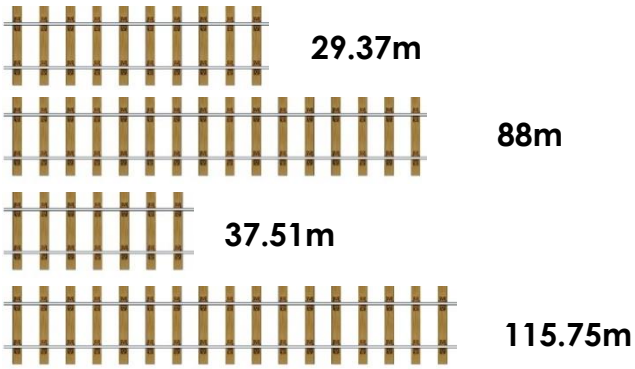


Who is correct? Explain your answer.

R

Wholes and Decimals

7a. A train company needs 300m of track. They have already laid these pieces.



Which piece could be laid again?

(not to scale)

GD PS

7b. Chris has spent £700 exactly. He bought these items and one duplicate.

Which item did he buy twice?

GD PS

8a. Bobbi thinks the missing digits are 7, 5, 3 and 1.

	6	6	4 •	0	0	
+			9 •	1		
		4	•		5	

Is she correct? Prove it.

GD R

8b. Kristof thinks the missing digits are 5, 0 and 3.

	1		7 •		3	
+	1	3	5 •	0	0	
		3	•	0		

Is he correct? Prove it.

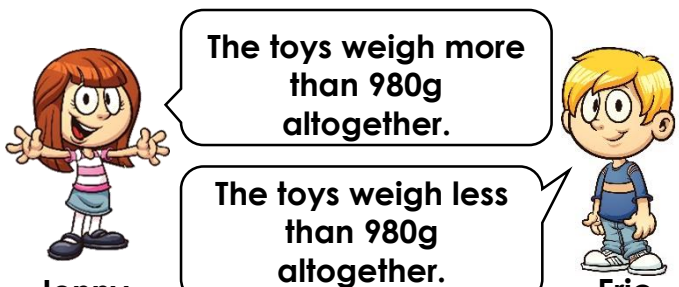
GD R

9a. Cyrus and Vanessa went for a run. Together, they ran 165.27m around the park, 117m around a football field and 89.79m to get home. Vanessa ran a further 237m when she got home.

Who is correct? Explain your answer.

GD R

9b. Eric and Jenny weighed some of the toys on a shelf. There were two toys at 241.36g each, a toy at 110g, a toy at 47g and two toys at 173.92g each.



Who is correct? Explain your answer.

GD R

Reasoning and Problem Solving
Wholes and Decimals

Developing

1a. She has £1.60 left. She could buy sugar or another bag of flour.

2a. Susie is correct because 69 + 22.2 = 91.2.

3a. Nate is correct because they kicked the ball a total of 99.4m.

Expected

4a. She has 14.07m left. The biggest length she could cut again is 12.83m.

5a. Jameela is incorrect because134 + 27.41 = 161.41. The missing digits are 2, 4 and 1.

6a. Serena is correct because the meal cost £10.68.

Greater Depth

7a. 29.37m and piece A

8a. Bobbi is correct because 664 + 79.15 = 743.15

9a. Vanessa is correct because they ran a total of 981.12m.

Reasoning and Problem Solving
Wholes and Decimals

Developing

1b. He has £11.40 left. He could buy up to 2 footballs, up to another 2 yoyos.

2b. Pablo is incorrect because 41.1 + 26 = 67.1. The missing digits are 6 and 1.

3b. Dorota is correct.

Expected

4b. His tower is 15.5cm tall. The largest piece he could take off is 11cm.

5b. Caleb is correct because 263.66 + 351 = 614.66.

6b. Georgina is correct because they will spend a total of £103.12.

Greater Depth

7b. £41.99 and the watch

8b. Kristof is incorrect because 197.03 + 135 = 332.03. The missing digits are 9, 0, 3 and 2.

9b. Jenny is correct because the toys weigh a total of 987.56g.