

Reasoning and Problem Solving

Convert Units of Length

Developing

1a. Various possible answers where the total equals 20m or less, for example: 2 yellow cars, 2 green cars and 1 red car = $5\text{m} + 5\text{m} + 3\text{m} + 3\text{m} + 400\text{cm} = 20\text{m}$; 2 yellow cars and 2 red cars = $5\text{m} + 5\text{m} + 400\text{cm} + 400\text{cm} = 18\text{m}$

2a. He could have used all of roll B because $700\text{mm} = 70\text{cm} + 30\text{cm} = 100\text{cm}$. Or he could have used roll C and had 20cm left over.

3a. No, Alicia is incorrect because $450\text{cm} = 4.5\text{m}$. $4.5\text{m} + 4.5\text{m} + 2\text{m} + 2\text{m} = 13\text{m}$

Expected

4a. Various possible answers where the total equals 50m or less, for example: 2 yellow cars, 2 green cars and 2 red cars = $850\text{cm} + 850\text{cm} + 11.5\text{m} + 11.5\text{m} + 500\text{cm} + 500\text{cm} = 50\text{m}$; 1 yellow car, 3 green cars and 1 red car = $850\text{cm} + 11.5\text{m} + 11.5\text{m} + 11.5\text{m} + 500\text{cm} = 48\text{m}$

5a. C is the only option because $410\text{mm} = 41\text{cm}$ and $630\text{mm} = 63\text{cm}$. $56\text{cm} + 41\text{cm} + 63\text{cm} = 160\text{cm}$

6a. Yes, Daisy is correct because $620\text{cm} = 6.2\text{m}$. $2.8\text{m} + 2.8\text{m} + 6.2\text{m} + 6.2\text{m} = 18\text{m}$

Greater Depth

7a. Various possible answers where the total equals 50m or less, for example: 2 yellow cars and 1 green car = $18.5\text{m} + 18.5\text{m} + 1,200\text{cm} = 49\text{m}$; 1 yellow car and 2 red cars = $18.5\text{m} + 15,000\text{mm} + 15,000\text{mm} = 48.5\text{m}$; 4 green cars = $1,200\text{mm} \times 4 = 48\text{m}$

8a. He could have used roll C because $7,000\text{mm} = 7\text{m}$ and $475\text{cm} = 4.75\text{m}$. $8.25\text{m} + 7\text{m} + 4.75\text{m} = 20\text{m}$. Or he could have used roll B and had 2m left over.

9a. No, Celia is not correct because $0.035\text{km} = 35\text{m}$. $35\text{m} + 35\text{m} + 16\text{m} + 16\text{m} = 102\text{m}$

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1b. Various possible answers where the total equals 30m or less, for example: 3 blue cars and 3 orange cars = $3\text{m} + 3\text{m} + 3\text{m} + 7\text{m} + 7\text{m} + 7\text{m} = 30\text{m}$; 4 green cars, 1 blue car and 1 orange car = $500\text{cm} + 500\text{cm} + 500\text{cm} + 500\text{cm} + 3\text{m} + 7\text{m} = 30\text{m}$

2b. She could have used all of roll A because $400\text{mm} = 40\text{cm} + 50\text{cm} = 90\text{cm}$. Or she could have used roll C and had 20cm left over.

3b. Yes, Marcus is correct because $550\text{cm} = 5.5\text{m}$. $5.5\text{m} + 5.5\text{m} + 3\text{m} + 3\text{m} = 17\text{m}$

Expected

4b. Various possible answers where the total equals 45m or less, for example: 2 blue cars, 1 orange car and 2 green cars = $650\text{cm} + 650\text{cm} + 7\text{m} + 12.5\text{m} + 12.5\text{m} = 45\text{m}$; 3 green cars and 1 orange car = $12.5\text{m} + 12.5\text{m} + 12.5\text{m} + 7\text{m} = 44.5\text{m}$

5b. She could have used roll B because $530\text{mm} = 53\text{cm}$ and $820\text{mm} = 82\text{cm}$. $53\text{cm} + 82\text{cm} + 75\text{cm} = 210\text{cm}$. Or she could have used roll C and had 20cm left over.

6b. No, Tyson is not correct because $530\text{cm} = 5.3\text{m}$. $5.3\text{m} + 5.3\text{m} + 3.7\text{m} + 3.7\text{m} = 18\text{m}$

Greater Depth

7b. Various possible answers where the total equals 70m or less, for example: 2 blue cars and 2 orange cars = $1,650\text{cm} + 1,650\text{cm} + 18,000\text{mm} + 18,000\text{mm} = 69\text{m}$; 3 green cars and 2 orange cars = $9.5\text{m} + 9.5\text{m} + 18,000\text{mm} + 18,000\text{mm} = 64.5\text{m}$

8b. She could have used roll A because $680\text{cm} = 6.8\text{m}$ and $15,000\text{mm} = 15\text{m}$. $6.8\text{m} + 12.2\text{m} + 15\text{m} = 34\text{m}$. Or she could have used roll B with 2m left over.

9b. Yes, Tomas is correct because $0.043\text{km} = 43\text{m}$. $43\text{m} + 43\text{m} + 22\text{m} + 22\text{m} = 130\text{m}$