

# Addition and Subtraction Challenge Cards



A palindromic number is the same forwards as it is backwards. E.g.

**131**

**22**

Find different ways to make palindromic numbers by adding and subtracting 2-digit numbers.

$$92 - 15 = 77$$

$$12 + 10 = 22$$

Can you make 20 by adding three numbers in a row, column or diagonally?

9	10	9	1
7	5	8	3
5	7	6	10
4	8	8	7

How many ways can you make £1.00, using only 50p, 20p and 10p coins?



How many ways can you find to make £1.00 using 5 silver coins?

What if you were to use 6 coins?



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How many ways can you find to make 15 by adding or subtracting 3 single-digit numbers?

0 1 2 3 4 5 6 7 8 9

+ -

$$9 + 9 - 3$$

$$5 + 5 + 5$$

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**Mrs Rabbit's wall is 1m long. She wants her furniture to fit exactly.**

What furniture could she place along her wall?



25cm



50cm



20cm

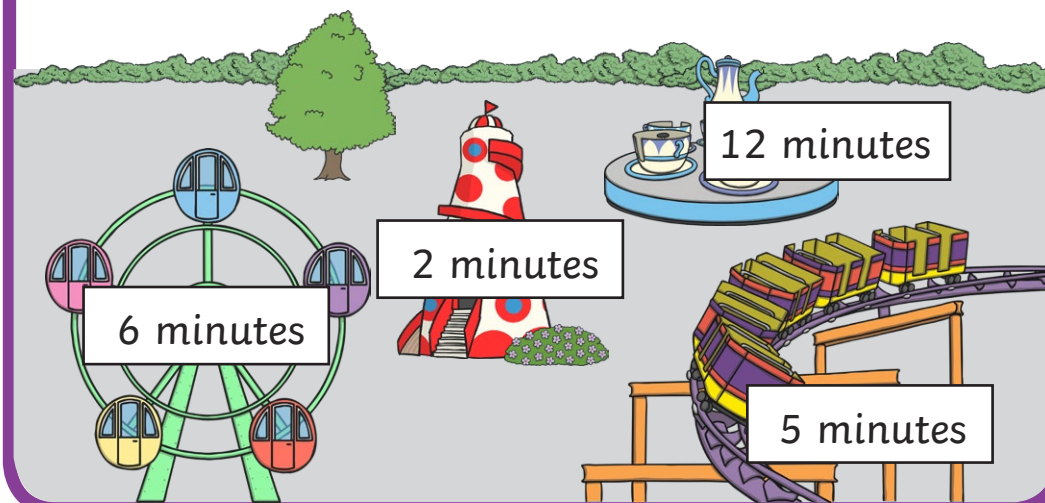


15cm

You can use each item more than once.

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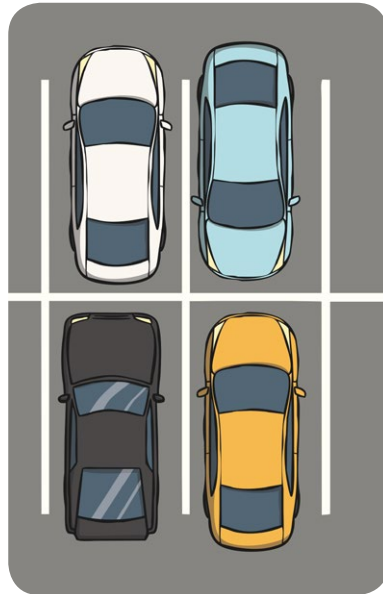
**Sophia is allowed 20 minutes at the fairground.**  
What rides could she go on to fill the time exactly?



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**A car park holds 100 cars.**

- How many spaces are left if 40 cars arrive?
- What about 70 cars?
- The car park has 80 spaces. How many cars are parked?
- Can you ask a question about the car park?



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Carla is between 13 and 19 years old. Her brother is 4 years younger.

**How old might each of them be?**



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How many numbers between 0 and 20 can you find that have a difference of 5?



Can you find a pattern?

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**Hamish is mixing potions. His potion is 50ml.**

Which ingredients might he have used?

Nettle Juice  
**10ml**



Squished Leaves  
**12ml**



Blackberries  
**20ml**



Slime  
**8ml**



Rose Water  
**15ml**



Pond Water  
**25ml**



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# 3, 5, 7, and 9

How many numbers from 1-20 can you make by adding or subtracting any of these numbers?

You can use each digit more than once.

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Henry has found some old weighing scales. He can only find 1kg, 2kg, 3kg, and 6kg weights.

How many different weights can he make?



If I put the 3kg and the 5kg on the scales together, I can make 8kg.

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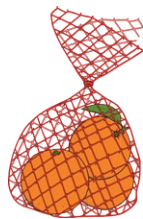
Hamish goes to the shop with 50p. What 2 items can he afford to buy? Find all possibilities.



20p



25p



28p



34p



36p

Beth went to the shop with £1.00. She bought 2 items. How much money might she have left?

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Beth starts with 20 and subtracts 1. She keeps repeating this, but each time, she takes one more away than the last time. Will she arrive at zero?



$$20 - 1 = 19$$

$$19 - 2 = 17$$

$$17 - 3 = 14$$

$$14 - 4 = 10$$

I wonder if I will get to zero?

Can you think of a different starting number where Beth would get to zero?

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# Addition and Subtraction Challenge Cards Answers

1. Find different ways to make palindromic numbers by adding and subtracting 2-digit numbers.

$$92 - 15 = 77$$

$$12 + 10 = 22$$

2. Can you make 20 by adding three numbers in a row, column or diagonally?

9	10	9	1
7	5	8	3
5	7	6	10
4	8	8	7

3. How many ways can you find to make £1.00 using only 50p 20p and 10p coins?

$$50p + 50p$$

$$50p + 20p + 20p + 10p$$

$$50p + 20p + 10p + 10p + 10p$$

$$50p + 10p + 10p + 10p + 10p + 10p$$

$$20p + 20p + 20p + 20p + 20p$$

$$20p + 20p + 20p + 20p + 10p + 10p$$

$$20p + 20p + 20p + 10p + 10p + 10p + 10p$$

$$20p + 20p + 10p + 10p + 10p + 10p + 10p + 10p$$

$$20p + 10p + 10p + 10p + 10p + 10p + 10p + 10p + 10p$$

$$10p + 10p + 10p + 10p + 10p + 10p + 10p + 10p + 10p + 10p$$

4. How many ways can you find to make £1.00 using only silver coins?

$$50p + 20p + 20p + 5p + 5p$$

$$50p + 20p + 10p + 10p + 10p$$

$$20p + 20p + 20p + 20p + 20p$$

$$50p + 20p + 10p + 10p + 5p + 5p$$

$$50p + 10p + 10p + 10p + 10p + 10p$$

$$20p + 20p + 20p + 20p + 10p + 10p$$

5. How many ways can you find to make 15 by adding or subtracting 3 single-digit numbers?

$$9 + 6 + 0$$

$$8 + 8 + 1$$

$$6 + 5 + 4$$

$$9 + 4 + 2$$

$$9 + 5 + 1$$

$$9 + 9 - 3$$

$$8 + 7 + 0$$

$$9 + 3 + 3$$

$$9 + 7 - 1$$

$$8 + 5 + 2$$

$$8 + 6 + 1$$

$$7 + 7 + 1$$

$$8 + 4 + 3$$

$$7 + 5 + 3$$

$$7 + 6 + 2$$

$$6 + 6 + 3$$

$$7 + 4 + 4$$

6. Mrs Rabbit's wall is 1m long. She wants her furniture to fit exactly. What furniture could she place along her wall?

Possible answers:

• 4 cupboards

• 2 tables

• 5 bookcases

• 2 cupboards + 1 table

• 2 cupboards, 1 bookcase and 2 chairs

• 1 cupboard, 1 chair and 3 bookcases

• 1 table, 1 bookcase and 2 chairs

• 4 chairs and 2 bookcases

7. Sofia is allowed 20 minutes at the fairground. What rides could she go on to fill the time exactly?

$$12 + 6 + 2$$

$$6 + 6 + 6 + 2$$

$$10 + 10$$

$$5 + 5 + 5 + 5$$

$$12 + 2 + 2 + 2 + 2$$

$$5 + 5 + 6 + 2 + 2$$

8. How many spaces are left if 40 cars arrive?  
60

What about 70 cars?

30

The car park has 80 spaces. How many cars are parked?

20



# Addition and Subtraction Challenge Cards Answers

<p>9. How old might each of them be?</p> <p>13 and 9 14 and 10 15 and 11 16 and 12 17 and 13 18 and 14 19 and 15</p>	<p>10. How many numbers between 0 and 20 can you find that have a difference of 5? Can you spot a pattern?</p> <p>0-5, 1-6, 2-7, 3-8, 4-9, 5-10, 6-11, 7-12, 8-13, 9-14, 10-15, 11-16, 12-17, 13-18, 14-19, 15-20</p>																					
<p>11. Which ingredients might he have used?</p> <p>25 + 25 25 + 15 + 10 15 + 15 + 20 15 + 15 + 10 + 10 20 + 20 + 10 20 + 10 + 10 + 10 12 + 12 + 8 + 8 + 10 12 + 8 + 20 + 10 12 + 8 + 10 + 10 + 10</p>	<p>12. How many numbers from 1-20 can you make by adding or subtracting any of these numbers?</p> <p>All numbers from 1 – 20 can be made. Provided is one solution for each number.</p> <table><tr><td>9 – 5 – 3 = 1</td><td>3 + 5 = 8</td><td>9 + 9 – 3 = 15</td></tr><tr><td>5 – 3 = 2</td><td>9 + 3 – 3 = 9</td><td>9 + 9 – 5 + 3 = 16</td></tr><tr><td>9 – 3 – 3 = 3</td><td>7 + 3 = 10</td><td>7 + 3 + 7 = 17</td></tr><tr><td>7 – 3 = 4</td><td>9 + 9 – 7 = 11</td><td>9 + 9 = 18</td></tr><tr><td>7 + 3 – 5 = 5</td><td>7 + 5 = 12</td><td>9 + 9 – 5 + 3 + 3 = 19</td></tr><tr><td>3 + 3 = 6</td><td>9 + 9 – 5 = 13</td><td>5 + 3 + 5 + 3 = 20</td></tr><tr><td>9 – 5 + 3 = 7</td><td>7 + 7 = 14</td><td></td></tr></table>	9 – 5 – 3 = 1	3 + 5 = 8	9 + 9 – 3 = 15	5 – 3 = 2	9 + 3 – 3 = 9	9 + 9 – 5 + 3 = 16	9 – 3 – 3 = 3	7 + 3 = 10	7 + 3 + 7 = 17	7 – 3 = 4	9 + 9 – 7 = 11	9 + 9 = 18	7 + 3 – 5 = 5	7 + 5 = 12	9 + 9 – 5 + 3 + 3 = 19	3 + 3 = 6	9 + 9 – 5 = 13	5 + 3 + 5 + 3 = 20	9 – 5 + 3 = 7	7 + 7 = 14	
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<p>13. How many different weights can he make?</p> <p>1kg 2kg 3kg 3kg + 1kg = 4kg 3kg + 2 kg = 5 kg 6kg 6kg + 1kg = 7kg 6kg + 2kg = 8kg 6kg + 3kg = 9kg 6kg + 3kg + 1kg = 10kg 6kg + 3kg + 2kg = 11kg 6kg + 3kg + 2kg + 1kg = 12kg</p>	<p>14. Find all possibilities.</p> <p>bread and a comic or bread and fruit</p> <p><b>How much money might she have left?</b></p> <p>20p + 25p = 45p (55p change) 20p + 28p = 48p (52p change) 20p + 34p = 54p (46p change) 20p + 36p = 56p (44p change) 25p + 28p = 53p (47p change) 25p + 34p = 59p (41p change) 25p + 36p = 61p (39p change) 28p + 34p = 62p (38p change) 28p + 36p = 64p (36p change) 34p + 36p = 70p (30p change)</p>																					
<p>15. Will she arrive at zero?</p> <p>No</p> <p>10 – 5 = 5</p> <p>Can you think of a different starting number where Beth would get to zero?</p> <p>1, 3, 6, 10, 15, 21, 28</p>																						