

**Age 11+ Level ★  
Worksheet 1 - Solutions****1. Mathematical Ages**

Kowalevsky, Noether, Germain  
[rich.maths.org/6244/solution](http://rich.maths.org/6244/solution)

**2. Different Magic Square**

13	6	11
8	10	12
9	14	7

[rich.maths.org/6215/solution](http://rich.maths.org/6215/solution)

**3. Quiz Questions**

Jack omitted 5 questions  
[rich.maths.org/6255/solution](http://rich.maths.org/6255/solution)

**4. Debt Recovery**

Tina owes Tony 70p  
[rich.maths.org/6234/solution](http://rich.maths.org/6234/solution)

**5. Loose Change**

There are 10 ways to give change for a ten pence piece  
[rich.maths.org/6238/solution](http://rich.maths.org/6238/solution)

*These problems are adapted from UKMT ([ukmt.org.uk](http://ukmt.org.uk)) and WMC ([competition.ac](http://competition.ac)) problems.*

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Worksheet 2 - Solutions****1. Highs and Lows**

The maximum was  $5^\circ$  and the minimum was  $-5^\circ$

[rich.maths.org/6262/solution](http://rich.maths.org/6262/solution)

**2. Central Sum**

45 numbers satisfy the condition

[rich.maths.org/2347/solution](http://rich.maths.org/2347/solution)

**3. Mini Kakuro**

5 goes in the starred square

[rich.maths.org/5767/solution](http://rich.maths.org/5767/solution)

**4. Reverse Ages**

Brian will be 25

[rich.maths.org/12492/solution](http://rich.maths.org/12492/solution)

**5. Count Back**

Fifty-nine thousand, nine hundred and seventy-nine (59 979)

[rich.maths.org/12557/solution](http://rich.maths.org/12557/solution)

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Worksheet 1 - Solutions****1. Missing 9s**

The 300<sup>th</sup> number will be 363

[rich.maths.org/12793/solution](http://rich.maths.org/12793/solution)

**2. Even Squares**

36 squares

[rich.maths.org/5772/solution](http://rich.maths.org/5772/solution)

**3. Double with 1 to 9**

There are twelve possible pairs of numbers:

6729 and 13458

6792 and 13584

6927 and 13854

7269 and 14538

7293 and 14586

7329 and 14658

7692 and 15384

7923 and 15846

7932 and 15864

9267 and 18534

9273 and 18546

9327 and 18654

[rich.maths.org/7182/solution](http://rich.maths.org/7182/solution)

**4. Tick Tock**

8am on Monday

[rich.maths.org/4742/solution](http://rich.maths.org/4742/solution)

**5. Paying the Bill**

I owe Gill £11.50

[rich.maths.org/5697/solution](http://rich.maths.org/5697/solution)

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**Age 14+ Level ★★  
Worksheet 1 - Solutions****1. How Many Digits?**

35 digits

[rich.maths.org/12841/solution](http://rich.maths.org/12841/solution)**2. Pros and Cons** $p - q$ [rich.maths.org/5762/solution](http://rich.maths.org/5762/solution)**3. Sum Up**

He removed 223

[rich.maths.org/12607/solution](http://rich.maths.org/12607/solution)**4. Alberta's Age**

Alberta is 52 years old

[rich.maths.org/7177/solution](http://rich.maths.org/7177/solution)**5. Equal Length Powers**

There are three positive integers with the desired property (1, 2 &amp; 4)

[rich.maths.org/6797/solution](http://rich.maths.org/6797/solution)**6. Repeat Product** $P + Q + R = 13$ [rich.maths.org/10099/solution](http://rich.maths.org/10099/solution)

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