

Long Division (3): When the First Digit Is Too Small

NAME: _____ CLASS: _____ DATE: _____ SCORE:

WORKED EXAMPLE • THE MATRIX METHOD™

Complete the long division. $213 \div 3 = ?$

		7	1	
3	2	1	3	
	2	1		
			3	
			3	
			0	

- 2 is smaller than 3, so the 2 joins the 1. Work with 21.
- Divide: $21 \div 3 = 7$. Write 7 above the 1, not above the 2.
- Multiply, subtract: $7 \times 3 = 21$, $21 - 21 = 0$
- Bring down the 3. Divide: $3 \div 3 = 1$. Write 1 above the 3.
- Multiply, subtract: $1 \times 3 = 3$, $3 - 3 = 0$
- Nothing is written above the 2. The answer has two digits.

Ans: 71

Check the first digit before you start. [10 marks]

PART A • The first two digits divide exactly

(a) $128 \div 2 =$ _____

2	1	2	8	

(b) $189 \div 3 =$ _____

3	1	8	9	

(c) $244 \div 4 =$ _____

4	2	4	4	

(d) $355 \div 5 =$ _____

5	3	5	5	



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PART B · The first two digits leave a remainder to carry down

(e) $138 \div 2 =$ _____

2	1	3	8

(f) $147 \div 3 =$ _____

3	1	4	7

(g) $172 \div 4 =$ _____

4	1	7	2

(h) $185 \div 5 =$ _____

5	1	8	5

(i) $162 \div 3 =$ _____

3	1	6	2

(j) $536 \div 4 =$ _____

4	5	3	6

Answer Key — Long Division (3): When the First Digit Is Too Small

MATRIX METHOD™ • THE STEPS

Step 1: Compare the first digit with the divisor before you start.

Step 2: If it is smaller, join it to the next digit and divide those two together.

Step 3: Nothing is written above the first digit. Carry on as normal from there.

(a) $128 \div 2 = 64$

- 1 is smaller than 2, so the 1 joins the 2. Work with 12.
- $12 \div 2 = 6$. Write 6 above the 2. $6 \times 2 = 12$, $12 - 12 = 0$
- Bring down 8. $8 \div 2 = 4$. $4 \times 2 = 8$, $8 - 8 = 0$

(b) $189 \div 3 = 63$

- 1 is smaller than 3, so the 1 joins the 8. Work with 18.
- $18 \div 3 = 6$. Write 6 above the 8. $6 \times 3 = 18$, $18 - 18 = 0$
- Bring down 9. $9 \div 3 = 3$. $3 \times 3 = 9$, $9 - 9 = 0$

(c) $244 \div 4 = 61$

- 2 is smaller than 4, so the 2 joins the 4. Work with 24.
- $24 \div 4 = 6$. Write 6 above the first 4. $6 \times 4 = 24$, $24 - 24 = 0$
- Bring down 4. $4 \div 4 = 1$. $1 \times 4 = 4$, $4 - 4 = 0$

(d) $355 \div 5 = 71$

- 3 is smaller than 5, so the 3 joins the 5. Work with 35.
- $35 \div 5 = 7$. Write 7 above the first 5. $7 \times 5 = 35$, $35 - 35 = 0$
- Bring down 5. $5 \div 5 = 1$. $1 \times 5 = 5$, $5 - 5 = 0$

(e) $138 \div 2 = 69$

- 1 is smaller than 2, so the 1 joins the 3. Work with 13.
- $13 \div 2 = 6$ remainder 1. $6 \times 2 = 12$, $13 - 12 = 1$
- Bring down the 8 to make 18. $18 \div 2 = 9$. $9 \times 2 = 18$, $18 - 18 = 0$

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(f) $147 \div 3 = 49$

- 1 is smaller than 3, so the 1 joins the 4. Work with 14.
- $14 \div 3 = 4$ remainder 2. $4 \times 3 = 12$, $14 - 12 = 2$
- Bring down the 7 to make 27. $27 \div 3 = 9$. $9 \times 3 = 27$, $27 - 27 = 0$

(g) $172 \div 4 = 43$

- 1 is smaller than 4, so the 1 joins the 7. Work with 17.
- $17 \div 4 = 4$ remainder 1. $4 \times 4 = 16$, $17 - 16 = 1$
- Bring down the 2 to make 12. $12 \div 4 = 3$. $3 \times 4 = 12$, $12 - 12 = 0$

(h) $185 \div 5 = 37$

- 1 is smaller than 5, so the 1 joins the 8. Work with 18.
- $18 \div 5 = 3$ remainder 3. $3 \times 5 = 15$, $18 - 15 = 3$
- Bring down the 5 to make 35. $35 \div 5 = 7$. $7 \times 5 = 35$, $35 - 35 = 0$

(i) $162 \div 3 = 54$

- 1 is smaller than 3, so the 1 joins the 6. Work with 16.
- $16 \div 3 = 5$ remainder 1. $5 \times 3 = 15$, $16 - 15 = 1$
- Bring down the 2 to make 12. $12 \div 3 = 4$. $4 \times 3 = 12$, $12 - 12 = 0$

(j) $536 \div 4 = 134$

- 5 is BIGGER than 4, so start with the 5 on its own.
- $5 \div 4 = 1$ remainder 1. $1 \times 4 = 4$, $5 - 4 = 1$
- Bring down the 3 to make 13. $13 \div 4 = 3$ remainder 1. $3 \times 4 = 12$, $13 - 12 = 1$
- Bring down the 6 to make 16. $16 \div 4 = 4$. $4 \times 4 = 16$, $16 - 16 = 0$
- The answer has THREE digits.

COMMON ERROR TO WATCH FOR

Pupils force a digit above the first digit anyway, giving 071 or 710 instead of 71.
 Some write a 0 there. Nothing goes above that digit at all — the answer simply starts one place further to the right.