Unit 2 · Multi-Digit Multiplication and Division Cheat Sheet

Unit 2 focus: multiplying multi-digit numbers and estimating

1 Big Idea

Break a big multiplication into smaller parts, multiply each part, and add the partial products.

2 Important Vocabulary

factor	A number that is multiplied.	In 24 × 6 = 144, 24 and 6 are factors
product	The answer to a multiplication problem.	144 is the product of 24 × 6
partial products	The smaller products you add to find a whole product.	23 × 4 = 80 + 12
estimate	A close answer found with rounded or compatible numbers.	398 × 21 ≈ 400 × 20 = 8,000

3 How It Works

Multiply 46 × 23 with partial products.

Example: 46 × 23
46 × 3 = 138
46 × 20 = 920
Add: 138 + 920

Answer: 1,058

4 Visual Model

	40	6
20	800	120
3	120	18

Area model for 46 × 23: 800 + 120 + 120 + 18 = 1,058.

5 Remember This · Watch Out!

★ Remember this

- Estimate first so you can tell if your answer makes sense.
- Line up places when you add partial products.

⚠ Watch out!

- **Forgetting the placeholder zero:** 46 × 20 is 920, not 92
- **Adding instead of multiplying the parts:** use × for every part

6 Try It!

1. 327 × 14 = ?
   Answer: 4,578
2. Estimate 489 × 31.
   Answer: 500 × 30 = 15,000

Answers are printed upside down. Turn the page to check!

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More practice: dividing with one- and two-digit divisors and using remainders

1 Big Idea

Division makes equal groups. Use place value: divide, multiply, subtract, bring down. Then decide what the remainder means.

2 Important Vocabulary

dividend	The number being divided.	In 84 ÷ 4, the dividend is 84
divisor	The number you divide by.	In 84 ÷ 4, the divisor is 4
quotient	The answer to a division problem.	84 ÷ 4 = 21
remainder	The amount left over after dividing.	17 ÷ 5 = 3 R 2

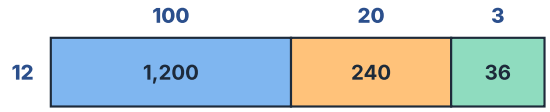
3 How It Works

Divide 1,476 ÷ 12.

Example: 1,476 ÷ 12
14 ÷ 12 → 1 (hundred): 1,476 − 1,200 = 276
27 ÷ 12 → 2 (tens): 276 − 240 = 36
36 ÷ 12 → 3 (ones)

Answer: 123

4 Visual Model



Area model for 1,476 ÷ 12: the lengths 100 + 20 + 3 make the quotient 123.

5 Remember This · Watch Out!

★ Remember this

- Check: quotient × divisor + remainder = dividend.
- Remainders: round up, drop it, or use it as the answer, depending on the question.

⚠ Watch out!

- **Remainder too big:** the remainder must be less than the divisor
- **Skipping a zero in the quotient:** 816 ÷ 8 = 102, not 12

6 Try It!

1. 2,345 ÷ 7 = ?
   Answer: 335
2. 150 students, buses hold 42. How many buses?
   Answer: 4 buses (3 R 24, round up)

Answers are printed upside down. Turn the page to check!