

Long Division with Multi-Digit Divisors

Grade 6 math · Worksheet Answer Key · Standards: 6.NS.B.2

Every problem has a worked solution with the final answer in bold and a multiplication check where useful. Compare each partial product and subtraction with your own work to find any slip.

Standards: 6.NS.B.2 · **Level:** Grade 6

Problem 1 Naming the Parts

Dividend 456, divisor 12, quotient 38. Check: $12 \times 38 = 456$.

Answer: **dividend 456, divisor 12, quotient 38.**

Problem 2 Estimating Quotients

(a) $612 \approx 600$ and $29 \approx 30$, so $600 \div 30 = 20$.

(b) $4,185 \approx 4,200$ and $52 \approx 50$, so $4,200 \div 50 = 84$.

Answer: **(a) about 20; (b) about 84.**

Problem 3 Two-Digit Divisor

$98 \div 19 = 5$ (95), remainder 3. Bring down 8 to make 38; $19 \times 2 = 38$.

Check: $19 \times 52 = 988$.

Answer: **52.**

Problem 4 Another Two-Digit Divisor

$113 \div 18 = 6$ (108), remainder 5. Bring down 4 to make 54; $18 \times 3 = 54$.

Check: $18 \times 63 = 1,134$.

Answer: **63.**

Problem 5 Missing Digits

$75 \div 14 = 5$, and $14 \times 5 = 70$. Subtract: $75 - 70 = 5$, then bring down 6 to make 56.

Answer: **5, 0 and 5; the quotient is 54.**

$$\begin{array}{r} 14 \overline{) 756} \\ \underline{70} \\ 56 \\ \underline{56} \\ 0 \end{array}$$

$$756 \div 14 = 54.$$

Problem 6 Quotient with Remainder

$87 \div 26 = 3$ (78), remainder 9. Bring down 5 to make 95; $26 \times 3 = 78$ and $95 - 78 = 17$.

Check: $26 \times 33 + 17 = 858 + 17 = 875$.

Answer: **33 R 17.**

Problem 7 Three-Digit Quotient

$92 \div 34 = 2$ (68), remainder 24. Bring down 8: $248 \div 34 = 7$ (238), remainder 10. Bring down 2: $102 \div 34 = 3$.

Check: $34 \times 273 = 9,282$.

Answer: **273.**

Problem 8 Zero in the Quotient

$63 \div 21 = 3$ with remainder 0. Bring down 2: 21 does not fit into 2, so write 0. Bring down 7: $27 \div 21 = 1$ remainder 6.

Check: $21 \times 301 + 6 = 6,321 + 6 = 6,327$.

Answer: **301 R 6.**

Problem 9 Three-Digit Divisor

$146 \div 144 = 1$, remainder 2. Bring down 8: 28 does not fit, write 0. Bring down 8: $288 \div 144 = 2$.

Check: $144 \times 102 = 14,688$.

Answer: **102**.

Problem 10 Three-Digit Divisor with Remainder

$523 \div 175 = 2$ (350), remainder 173. Bring down 0: $1,730 \div 175 = 9$ (1,575), remainder 155. Bring down 0: $1,550 \div 175 = 8$ (1,400), remainder 150.

Check: $175 \times 298 + 150 = 52,150 + 150 = 52,300$.

Answer: **298 R 150**.

Problem 11 Check the Claim

$45 \times 60 = 2,700$, which is not 3,150, so the claim is wrong. $3,150 - 2,700 = 450$ and $450 \div 45 = 10$ more, so the quotient is 70. Check: $45 \times 70 = 3,150$.

Answer: **70**.

Problem 12 Estimate and Divide

$241 \div 35 = 6$ (210), remainder 31. Bring down 5: $315 \div 35 = 9$.

Check: $35 \times 69 = 2,415$. The estimate 70 is 1 more than 69.

Answer: **69**.

Problem 13 Buses for a Field Trip

$250 \div 48 = 5$ R 10, since $48 \times 5 = 240$ and $250 - 240 = 10$.

The 10 students left over still need a bus.

Answer: **6 buses**.



$$250 = 5 \times 48 + 10.$$

Problem 14 Packs of Pencils

$350 \div 12 = 29 \text{ R } 2$, because $12 \times 29 = 348$.

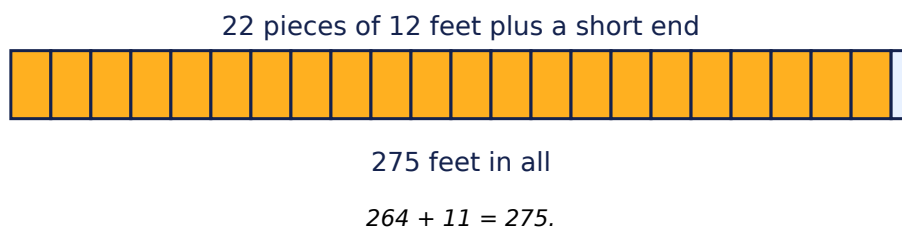
Answer: **29 full packs with 2 pencils left.**

Problem 15 Cutting a Rope

(a) $275 \div 12 = 22 \text{ R } 11$, because $12 \times 22 = 264$.

(b) The remainder 11 is shared among 12: $22 \frac{11}{12}$.

Answer: **(a) 22 full pieces with 11 feet left; (b) $22 \frac{11}{12}$.**



Problem 16 Classroom Markers

Total markers: $36 \times 24 = 864$. Then $864 \div 32 = 27$, since $32 \times 27 = 864$.

Answer: **27 markers.**

Problem 17 Cookie Cartons

Boxes: $4,500 \div 18 = 250$, since $18 \times 250 = 4,500$.

Cartons: $250 \div 12 = 20 \text{ R } 10$, and the 10 extra boxes need another carton.

Answer: **21 cartons.**

Problem 18 Road Trip Days

(a) $1,596 \div 57 = 28$, since $57 \times 28 = 1,596$.

(b) $28 \div 8 = 3 \text{ R } 4$, so after 3 days there are 4 hours left, which needs a fourth day.

Answer: **(a) 28 hours; (b) 4 days.**

Problem 19 Team Fundraiser

$3,468 \div 17 = 204$, since $17 \times 204 = 3,468$.

$204 \div 12 = 17$, since $12 \times 17 = 204$.

Answer: **\$204 per team, which buys 17 shirts.**

Problem 20 Concert Rows

(a) $2,150 \div 38 = 56 \text{ R } 22$, since $38 \times 56 = 2,128$. The 22 extra guests need another row, so 57 rows.

(b) $38 - 22 = 16$.

Answer: **(a) 57 rows; (b) 16 empty seats.**