

Grade 6 · Multi-Digit Division · Worksheet

Answer Key

Common Core 6.NS.B.2 · mathovore.fr

This answer key gives a full worked solution for each of the 20 long division problems, including each divide, multiply, subtract, and bring down step. Use the check lines to confirm every quotient by multiplying back to the dividend.

Grade 6 Common Core: 6.NS.B.2

Problem 1: Divide by one digit

6 goes into 7 once: $1 \times 6 = 6$, $7 - 6 = 1$. Bring down 5 to get 15. 6 goes into 15 twice: $2 \times 6 = 12$, $15 - 12 = 3$. Bring down 6 to get 36. $6 \times 6 = 36$, remainder 0.

Check: $6 \times 126 = 756$.

126

Problem 2: Divide by Five

Use 12. 5 goes into 12 twice: $2 \times 5 = 10$, $12 - 10 = 2$. Bring down 3 to get 23. 5 goes into 23 4 times: $4 \times 5 = 20$, $23 - 20 = 3$. Bring down 5 to get 35. 5 goes into 35 7 times: $7 \times 5 = 35$, $35 - 35 = 0$.

Check: $5 \times 247 = 1,235$.

247

Problem 3: Four-digit dividend

8 goes into 21 twice: 16, $21 - 16 = 5$. Bring down 8 to get 58. 8 goes into 58 seven times: 56, $58 - 56 = 2$. Bring down 4 to get 24. $8 \times 3 = 24$, remainder 0.

Check: $8 \times 273 = 2,184$.

273

Problem 4: Zero in the Quotient

Use 63. 7 goes into 63 9 times: $9 \times 7 = 63$, $63 - 63 = 0$. Bring down 0 to get 0. 7 does not go into

0, so write 0 in the quotient. Bring down 7 to get 7. 7 goes into 7 once: $1 \times 7 = 7$, $7 - 7 = 0$.

Check: $7 \times 901 = 6,307$.

901

Problem 5: Two-digit divisor

24 does not go into 9, so use 93. 24 goes into 93 three times: $3 \times 24 = 72$, $93 - 72 = 21$. Bring down 6 to get 216. $9 \times 24 = 216$, remainder 0.

Check: $24 \times 39 = 936$.

39

$$\begin{array}{r} \mathbf{39} \\ \mathbf{24} \overline{) \mathbf{936}} \\ \underline{- 72} \\ 216 \\ \underline{- 216} \\ 0 \end{array}$$

$936 \div 24 = 39$

Problem 6: Larger dividend

Use 43. 17 goes into 43 twice: 34, $43 - 34 = 9$. Bring down 5 to get 95. $5 \times 17 = 85$, $95 - 85 = 10$. Bring down 2 to get 102. $6 \times 17 = 102$, remainder 0.

Check: $17 \times 256 = 4,352$.

256

Problem 7: Five-Digit Dividend

Use 231. 56 goes into 231 4 times: $4 \times 56 = 224$, $231 - 224 = 7$. Bring down 8 to get 78. 56 goes into 78 once: $1 \times 56 = 56$, $78 - 56 = 22$. Bring down 4 to get 224. 56 goes into 224 4 times: $4 \times 56 = 224$, $224 - 224 = 0$.

Check: $56 \times 414 = 23,184$.

414

$$\begin{array}{r}
 \text{4 1 4} \\
 56 \overline{) 23184} \\
 \underline{- 224} \\
 78 \\
 \underline{- 56} \\
 224 \\
 \underline{- 224} \\
 0
 \end{array}$$

$$23,184 \div 56 = 414$$

Problem 8: Repeated subtraction steps

Use 84. 33 goes into 84 twice: 66, $84 - 66 = 18$. Bring down 1 to get 181. $5 \times 33 = 165$, $181 - 165 = 16$. Bring down 5 to get 165. $5 \times 33 = 165$, remainder 0.

Check: $33 \times 255 = 8,415$.

255

Problem 9: Quotient with a remainder

Use 73. 45 goes into 73 once: 45, $73 - 45 = 28$. Bring down 5 to get 285. $6 \times 45 = 270$, $285 - 270 = 15$. Bring down 9 to get 159. $3 \times 45 = 135$, $159 - 135 = 24$.

Check: $45 \times 163 + 24 = 7,335 + 24 = 7,359$.

163 R 24

$$\begin{array}{r}
 \text{1 6 3} \\
 45 \overline{) 7359} \\
 \underline{- 45} \\
 285 \\
 \underline{- 270} \\
 159 \\
 \underline{- 135} \\
 24
 \end{array}$$

$$7,359 \div 45 = 163 \text{ R } 24$$

Problem 10: Quotient and Remainder

Use 51. 37 goes into 51 once: $1 \times 37 = 37$, $51 - 37 = 14$. Bring down 6 to get 146. 37 goes into 146 3 times: $3 \times 37 = 111$, $146 - 111 = 35$. Bring down 3 to get 353. 37 goes into 353 9 times: $9 \times 37 = 333$, $353 - 333 = 20$.

Check: $37 \times 139 + 20 = 5,143 + 20 = 5,163$.

139 R 20

$$\begin{array}{r}
 \text{139} \\
 37 \overline{) 5163} \\
 \underline{- 37} \\
 146 \\
 \underline{- 111} \\
 353 \\
 \underline{- 333} \\
 20
 \end{array}$$

$$5,163 \div 37 = 139 \text{ R } 20$$

Problem 11: Check by Multiplying

Check with quotient times divisor plus remainder: $40 \times 130 + 3 = 5,200 + 3 = 5,203$. This is not 5,230, so Aisha is not correct.

Find the remainder: $5,230 - 5,200 = 30$, and $30 < 40$. Check: $40 \times 130 + 30 = 5,230$.

Aisha is not correct. The answer is 130 R 30.

Problem 12: Estimate then divide

Estimate: $6,123 \approx 6,000$ and $29 \approx 30$, so $6,000 \div 30 = 200$.

Exact: use 61. 29 goes into 61 twice: 58, $61 - 58 = 3$. Bring down 2 to get 32. $1 \times 29 = 29$, $32 - 29 = 3$. Bring down 3 to get 33. $1 \times 29 = 29$, $33 - 29 = 4$.

Check: $29 \times 211 + 4 = 6,119 + 4 = 6,123$. The answer is close to the estimate of 200.

211 R 4

$$\begin{array}{r}
 \text{29} \overline{) \begin{array}{r} \text{6 1 2 3} \\ \underline{\text{5 8}} \\ \text{3 2} \\ \underline{\text{2 9}} \\ \text{3 3} \\ \underline{\text{2 9}} \\ \text{4} \end{array}} \\
 \end{array}$$

$$6,123 \div 29 = 211 \text{ R } 4$$

Problem 13: Compatible Numbers

Estimate: $5,982 \approx 6,000$ and $31 \approx 30$, so $6,000 \div 30 = 200$.

Exact: Use 59. 31 goes into 59 once: $1 \times 31 = 31$, $59 - 31 = 28$. Bring down 8 to get 288. 31 goes into 288 9 times: $9 \times 31 = 279$, $288 - 279 = 9$. Bring down 2 to get 92. 31 goes into 92 twice: $2 \times 31 = 62$, $92 - 62 = 30$.

Check: $31 \times 192 + 30 = 5,952 + 30 = 5,982$. The answer is close to the estimate of 200.

192 R 30

Problem 14: Bake sale boxes

Divide $1,248 \div 24$. Use 124: $5 \times 24 = 120$, $124 - 120 = 4$. Bring down 8 to get 48. $2 \times 24 = 48$, remainder 0.

Check: $24 \times 52 = 1,248$.

Sofia fills 52 boxes.

Problem 15: Rows of Chairs

Divide $1,092 \div 28$. Use 109. 28 goes into 109 3 times: $3 \times 28 = 84$, $109 - 84 = 25$. Bring down 2 to get 252. 28 goes into 252 9 times: $9 \times 28 = 252$, $252 - 252 = 0$.

Check: $28 \times 39 = 1,092$.

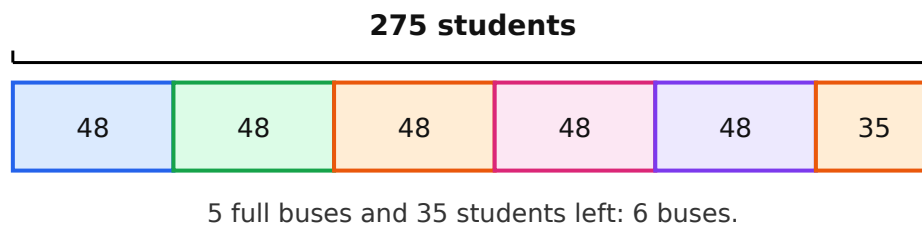
39 rows.

Problem 16: Field trip buses

Divide $275 \div 48$. 48 goes into 275 five times: $5 \times 48 = 240$, $275 - 240 = 35$. The quotient is 5 R 35.

Five buses seat only 240 students, so 35 students would be left without a seat. One more bus is needed.

The school needs 6 buses.



Problem 17: Bags of Marbles

Divide $4,580 \div 36$. Use 45. 36 goes into 45 once: $1 \times 36 = 36$, $45 - 36 = 9$. Bring down 8 to get 98. 36 goes into 98 twice: $2 \times 36 = 72$, $98 - 72 = 26$. Bring down 0 to get 260. 36 goes into 260 7 times: $7 \times 36 = 252$, $260 - 252 = 8$.

Check: $36 \times 127 + 8 = 4,572 + 8 = 4,580$.

- a. **127 full bags.**
- b. **8 marbles left over.**
- c. One more bag needs 36 marbles: $36 - 8 = 28$. **28 more marbles.**

Problem 18: Egg cartons

Divide $3,650 \div 12$. Use 36: $3 \times 12 = 36$, remainder 0. Bring down 5: 12 does not go into 5, so write 0. Bring down 0 to get 50. $4 \times 12 = 48$, $50 - 48 = 2$. The quotient is 304 R 2.

Check: $12 \times 304 + 2 = 3,648 + 2 = 3,650$.

Money: $304 \times \$3 = \$912$.

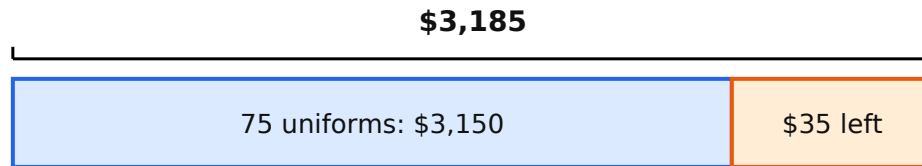
304 full cartons, 2 eggs left over, and \$912 earned.

Problem 19: Team Uniforms

Divide $3,185 \div 42$. Use 318. 42 goes into 318 7 times: $7 \times 42 = 294$, $318 - 294 = 24$. Bring down 5 to get 245. 42 goes into 245 5 times: $5 \times 42 = 210$, $245 - 210 = 35$.

Check: $42 \times 75 + 35 = 3,150 + 35 = 3,185$.

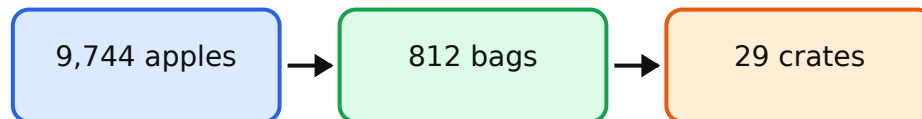
- a. **75 uniforms.**
- b. **\$35 left over.**
- c. Another uniform costs \$42: $42 - 35 = 7$. **\$7 more.**



Each block is part of the \$3,185: 75 uniforms and \$35 left.

Problem 20: Apple Crates

- a. $9,744 \div 12$. Use 97. 12 goes into 97 8 times: $8 \times 12 = 96$, $97 - 96 = 1$. Bring down 4 to get 14. 12 goes into 14 once: $1 \times 12 = 12$, $14 - 12 = 2$. Bring down 4 to get 24. 12 goes into 24 twice: $2 \times 12 = 24$, $24 - 24 = 0$. Check: $12 \times 812 = 9,744$. **812 bags.**
- b. $812 \div 28$. Use 81. 28 goes into 81 twice: $2 \times 28 = 56$, $81 - 56 = 25$. Bring down 2 to get 252. 28 goes into 252 9 times: $9 \times 28 = 252$, $252 - 252 = 0$. Check: $28 \times 29 = 812$. **29 crates.**



9,744 apples fill 812 bags and 29 crates.