Worksheet - Formal written multiplication and division

Year: Year 5 · 20

Show your working.

Question 1

Question 1 – Multiply by 10, 100 and 1,000 *(Section A · Practice)*

Work out.

a. 47 × 10
b. 47 × 100
c. 47 × 1,000
d. 306 × 100
e. 5,200 × 10

Question 2

Question 2 – Divide by 10, 100 and 1,000 *(Section A · Practice)*

Work out.

a. 8,300 ÷ 10
b. 8,300 ÷ 100
c. 90,000 ÷ 1,000
d. 45,600 ÷ 100
e. 700 ÷ 10

Question 3

Question 3 – Short multiplication *(Section A · Practice)*

Use the short multiplication method. Estimate first.

a. 1,234 × 3
b. 2,506 × 4
c. 3,978 × 6
d. 4,125 × 7

Question 4

Question 4 – Long multiplication *(Section A · Practice)*

Use long multiplication.

a. 34 × 26
b. 47 × 38
c. 256 × 34
d. 83 × 19

Question 5

Question 5 – Short division *(Section A · Practice)*

Use short division.

a. 756 ÷ 6
b. 1,284 ÷ 4
c. 2,835 ÷ 5
d. 9,072 ÷ 8

Question 6

Question 6 – Division with remainders *(Section A · Practice)*

Work these out and write each answer with a remainder.

a. 135 ÷ 4
b. 2,000 ÷ 7
c. 1,234 ÷ 9
d. 5,000 ÷ 6

Question 7

Question 7 – The school trip buses *(Section B · Real-life practice)*

Year 5 are going on a trip to the science museum. There are 4 coaches and each coach has 52 seats. 187 children and teachers want to go.

a. How many seats are there altogether?
b. Are there enough seats? How many seats are empty or how many people are left without a seat?
c. The museum tickets cost £9 each. How much do 187 tickets cost?
d. The coach company charges £245 for each coach. How much does it cost for all four coaches?

Question 8

Question 8 – Sweets in the factory *(Section B · Real-life practice)*

A factory packs sweets into bags. Every bag holds 36 sweets and a machine fills 24 bags every minute.

a. How many sweets does the machine pack in one minute?

b. How many sweets does it pack in 10 minutes?
c. The machine runs for 100 minutes. How many sweets is that? Write the number in words.
d. The factory has 8,640 sweets in a tank. How many bags of 36 sweets can be filled from the tank?

Question 9

Question 9 – Seats at the stadium *(Section B · Real-life practice)*

The east stand of a football stadium has 38 rows. Each row has 45 seats.

a. How many seats are in the east stand?
b. The west stand has 2,610 seats arranged in rows of 45. How many rows are there?
c. All the seats in both stands are sold. How many seats is that?
d. Each ticket is £12. How much money is taken from the east stand?

Question 10

Question 10 – Flour for the cakes *(Section B · Real-life practice)*

A baker has a bag of flour that weighs 1,250 g. She uses it to make 5 equal cakes for a party.

a. How much flour goes into each cake?
b. Another bag weighs 2,000 g. She divides it into 8 equal piles. How much is in each pile?
c. She has 4,500 g of sugar and shares it between 9 bags. How much sugar is in each bag?
d. A cake needs 250 g of flour. How many cakes can she make from three 1,250 g bags?

Question 11

Question 11 – Books in the school library *(Section B · Real-life practice)*

The school library has 1,248 new books. The headteacher shares them equally between 8 classes.

a. How many books does each class get?
b. Each class has 24 pupils and shares the books equally. How many books does each pupil get?
c. The library buys 365 more books in a sale at £7 each. How much do they cost?
d. There are 2,000 books in the old library. They are put in boxes of 7. How many full boxes are there and how many books are left over?

Question 12

Question 12 – Eggs on the farm *(Section B · Real-life practice)*

A farmer collects 100 eggs from the hen house. Eggs are packed into boxes that hold 6 eggs each.

a. How many full boxes can the farmer pack?
b. How many eggs are left over?
c. The farmer wants to put every egg into a box. How many boxes does he need?
d. Each full box is sold for £2.40. How much money does he get for the full boxes?

Question 13

Question 13 – Cinema night *(Section B · Real-life practice)*

A cinema has 18 rows of 24 seats. Tickets cost £8 each. On Friday night every seat is sold.

a. How many seats does the cinema have?
b. How much money does the cinema make on Friday night?
c. On Saturday 365 tickets are sold. How many seats are empty?
d. The cinema owner buys popcorn in boxes of 100. He needs 1,000 portions. How many boxes should he buy?

Question 14

Question 14 – The train to the seaside *(Section B · Real-life practice)*

A train has 12 carriages and each carriage has 78 seats. On a sunny Saturday the train makes 4 journeys to the seaside.

a. How many seats are there on the train?
b. A day return ticket costs £13. How much money is taken if every seat is sold on one journey?
c. The train travels at 96 miles an hour for 3 hours. How far does it go?
d. The seaside is 288 miles away along the whole line. How many hours does the journey take at 96 miles an hour?

Question 15

Question 15 – The summer fair *(Section C · Problem solving)*

The school summer fair sells tickets for activities. The table shows what each stall sold.

Stall	Tickets sold	Price of one ticket
Hoopla	176	£3
Cake stall	248	£2

Stall	Tickets sold	Price of one ticket
Face painting	64	£5
Tombola	305	£4

a. How much money does each stall take?
b. Which stall takes the most money?
c. Find the total money taken by all four stalls.
d. The fair has costs of £1,250. What is the profit?
e. The profit is divided equally between 4 school clubs. How much does each club receive?

Question 16

Question 16 – Packing the coach luggage *(Section C · Problem solving)*

A coach company packs 2,000 water bottles into crates. Each crate holds 7 bottles.

a. How many full crates can be packed? How many bottles are left over?
b. How many crates are needed to carry every bottle?
c. Each crate costs £3 to hire. What is the cost of hiring the crates in part (b)?
d. If the 2,000 bottles are shared equally between 7 coaches, how many does each coach get? Write the answer as a number and a remainder.
e. Explain why the answers to (a) and (b) are different.

Question 17

Question 17 – Missing digits and checking *(Section C · Problem solving)*

Otto has made some mistakes while checking calculations. Use inverse operations to find them.

a. Ben says 234 × 6 = 1,304. Use division to show he is wrong, and work out the right answer.
b. Cara says 1,596 ÷ 4 = 349. Check by multiplying. Is she right?
c. The missing digits in 3□□ × 5 = 1,935 are what? Find the number.
d. A number is multiplied by 8 and then 56 is added. The answer is 1,000. What was the number?
e. Write a multiplication and division fact family using the numbers 12, 25 and 300.

Question 18

Question 18 – Estimating first *(Section C · Problem solving)*

Mr Singh orders 38 boxes of football stickers. Each box has 52 packets of stickers.

a. Round each number to the nearest ten and estimate the number of packets.
b. Work out the exact answer using long multiplication.
c. How close was the estimate to the exact answer?

d. Each packet costs 45p. Estimate the total cost in pounds and then find the exact cost in pence.

Question 19

Question 19 – The grid problem *(Section C · Problem solving)*

A farmer plants apple trees in a rectangular orchard. There are 148 rows of trees and every row has 25 trees.

a. How many trees are in the orchard?
b. Each tree gives about 40 apples in a year. How many apples are produced?
c. The apples are packed in trays of 12. How many full trays are packed, and how many apples are left over?
d. A tray sells for £3. How much money is taken for the full trays?
e. The farmer says that with 10 times as many trees he would pack exactly 10 times as many full trays. Is he right? Explain.

Question 20

Question 20 – Challenge: the reversing number *(Section D · Challenge)*

The four-digit number **2178** is special.

a. Work out 2,178 × 4. What do you notice about the digits of the answer?
b. Does the digit-reversing trick also work for 1,089 × 9? Check it.
c. Find another number that is multiplied by 4 and gives its reverse. Explain why 2,178 is the only four-digit number with this property.