Answers - Formal written multiplication and division

Year: Year 5

Answer to Question 1

a. The digits move one place left: **470**.
b. Two places left: **4,700**.
c. Three places left: **47,000**.
d. 306 × 100 = **30,600**.
e. 5,200 × 10 = **52,000**.

Answer to Question 2

a. The digits move one place right: **830**.
b. Two places right: **83**.
c. 90,000 ÷ 1,000 = **90**.
d. 45,600 ÷ 100 = **456**.
e. 700 ÷ 10 = **70**.

Answer to Question 3

a. 1,234 × 3 = **3,702**. Estimate: 1,000 × 3 = 3,000.
b. 2,506 × 4 = **10,024**. Estimate: 3,000 × 4 = 12,000.
c. 3,978 × 6 = **23,868**. Estimate: 4,000 × 6 = 24,000.
d. 4,125 × 7 = **28,875**. Estimate: 4,000 × 7 = 28,000.

Answer to Question 4

a. 34 × 26: 34 × 6 = 204 and 34 × 20 = 680. Add: **884**.
b. 47 × 38: 47 × 8 = 376 and 47 × 30 = 1,410. Add: **1,786**.
c. 256 × 34: 256 × 4 = 1,024 and 256 × 30 = 7,680. Add: **8,704**.
d. 83 × 19: 83 × 9 = 747 and 83 × 10 = 830. Add: **1,577**.

Answer to Question 5

a. 756 ÷ 6 = **126**. Check: 126 × 6 = 756.
b. 1,284 ÷ 4 = **321**. Check: 321 × 4 = 1,284.
c. 2,835 ÷ 5 = **567**. Check: 567 × 5 = 2,835.

d. 9,072 ÷ 8 = **1,134**. Check: 1,134 × 8 = 9,072.

Answer to Question 6

a. 135 ÷ 4 = **33 remainder 3**. Check: 33 × 4 + 3 = 135.
b. 2,000 ÷ 7 = **285 remainder 5**. Check: 285 × 7 + 5 = 2,000.
c. 1,234 ÷ 9 = **137 remainder 1**. Check: 137 × 9 + 1 = 1,234.
d. 5,000 ÷ 6 = **833 remainder 2**. Check: 833 × 6 + 2 = 5,000.

Answer to Question 7

a. 52 × 4 = **208 seats**.
b. 208 − 187 = **21 empty seats**, so there are enough.
c. 187 × 9 = **£1,683**.
d. 245 × 4 = **£980**.

Answer to Question 8

a. 36 × 24 = 720 + 144 = **864 sweets**.
b. 864 × 10 = **8,640 sweets**.
c. 864 × 100 = **86,400**: eighty-six thousand, four hundred.
d. 8,640 ÷ 36 = **240 bags**. Check: 240 × 36 = 8,640.

Answer to Question 9

a. 45 × 38 = 1,350 + 360 = **1,710 seats**. (45 × 30 = 1,350 and 45 × 8 = 360.)
b. 2,610 ÷ 45 = **58 rows**.
c. 1,710 + 2,610 = **4,320 seats**.
d. 1,710 × 12 = 17,100 + 3,420 = **£20,520**.

Answer to Question 10

a. 1,250 ÷ 5 = **250 g**.
b. 2,000 ÷ 8 = **250 g**.
c. 4,500 ÷ 9 = **500 g**.
d. 3 × 1,250 = 3,750 g. 3,750 ÷ 250 = **15 cakes**.

Answer to Question 11

a. 1,248 ÷ 8 = **156 books**.
b. 156 ÷ 24 = **6.5**, so each pupil gets 6 books and there are 12 left over (6 × 24 = 144 and 156 − 144 = 12).
c. 365 × 7 = **£2,555**.
d. 2,000 ÷ 7 = 285 remainder 5, so **285 full boxes and 5 books left over**.

Answer to Question 12

a. 100 ÷ 6 = 16 remainder 4, so **16 full boxes**.
b. **4 eggs** are left over.
c. The 4 left-over eggs need another box, so he needs **17 boxes**.
d. 16 × 2.40 = **£38.40**.

Answer to Question 13

a. 24 × 18 = 240 + 192 = **432 seats**.
b. 432 × 8 = **£3,456**.
c. 432 − 365 = **67 empty seats**.
d. 1,000 ÷ 100 = **10 boxes**.

Answer to Question 14

a. 78 × 12 = 780 + 156 = **936 seats**.
b. 936 × 13 = 9,360 + 2,808 = **£12,168**.
c. 96 × 3 = **288 miles**.
d. 288 ÷ 96 = **3 hours**.

Answer to Question 15

a. Hoopla: 176 × 3 = **£528**. Cake stall: 248 × 2 = **£496**. Face painting: 64 × 5 = **£320**. Tombola: 305 × 4 = **£1,220**.
b. The **tombola** takes the most (£1,220).
c. 528 + 496 + 320 + 1,220 = **£2,564**.
d. 2,564 − 1,250 = **£1,314**.
e. 1,314 ÷ 4 = 328 remainder 2, so each club gets **£328.50** (the remaining £2 is shared as 50p each).

Answer to Question 16

a. 2,000 ÷ 7 = 285 remainder 5. There are **285 full crates** and **5 bottles** left.
b. The 5 spare bottles need another crate: **286 crates**.

c. 286 × 3 = **£858**.
d. Each coach gets **285 bottles** with **5 left over**.
e. In (a) we only count the full crates. In (b) every bottle must be packed, so we round up.

Answer to Question 17

a. 1,304 ÷ 6 is not whole (6 × 217 = 1,302). The right answer is 234 × 6 = **1,404**. Check: 1,404 ÷ 6 = 234.
b. 349 × 4 = 1,396, not 1,596. 1,596 ÷ 4 = **399**. So Cara is **wrong**.
c. 1,935 ÷ 5 = **387**. Check: 387 × 5 = 1,935.
d. Work backwards: 1,000 − 56 = 944, then 944 ÷ 8 = **118**.
e. 12 × 25 = 300, 25 × 12 = 300, 300 ÷ 12 = 25, 300 ÷ 25 = 12.

Answer to Question 18

a. 38 is about 40 and 52 is about 50. 40 × 50 = **2,000 packets**.
b. 52 × 38 = 52 × 8 + 52 × 30 = 416 + 1,560 = **1,976 packets**.
c. 2,000 − 1,976 = **24**, so the estimate was very close.
d. Estimate: 2,000 × 50p = £1,000. Exact: 1,976 × 45 = 88,920p = **£889.20**.

Answer to Question 19

a. 148 × 25 = 148 × 100 ÷ 4 = 14,800 ÷ 4 = **3,700 trees**.
b. 3,700 × 40 = **148,000 apples**.
c. 148,000 ÷ 12 = 12,333 remainder 4, so **12,333 full trays** and **4 apples** left.
d. 12,333 × 3 = **£36,999**.
e. No, not exactly. 10 times the trees gives 1,480,000 apples, which fill 123,333 full trays. But 10 × 12,333 = 123,330. The 4 left-over apples are multiplied by 10 too, and the 40 apples fill 3 more trays, so there are 3 extra trays.

Answer to Question 20

a. 2,178 × 4 = **8,712**. The answer is 2,178 written backwards.
b. 1,089 × 9 = **9,801**, which is 1,089 written backwards, so **yes**.
c. Searching all four-digit numbers by checking each one, only **2,178** works for × 4 (and 1,089 for × 9). A longer number such as 21,978 works too: 21,978 × 4 = 87,912.