

Unit 2 Section 3 : Multiplication and Division

In this section we review multiplication and division. Again, you are *not* expected to use a calculator.

Example 1

Calculate:

- (a) 41×10 **410**
- (b) 4.712×100 **471.2**
- (c) $62 \div 100$ **0.62**
- (d) $23.7 \div 10$ **2.37**

Example 2

Calculate:

- (a) 12×24 **288**
- (b) 37×15 **555**
- (b)
$$\begin{array}{r} 37 \\ \times 15 \\ \hline 185 \\ 370 \\ \hline 555 \\ \hline \end{array}$$

Note: With all these examples, there are many ways of obtaining the correct answer; for example, in (a) above:

$$\begin{aligned} 12 \times 24 &= (10 + 2) \times 24 \\ &= (10 \times 24) + (2 \times 24) \\ &= 240 + 48 \\ &= 288 \end{aligned}$$

However, we have used the written algorithm for long multiplication as it will *always* work, whereas short-cut methods do not necessarily generalise.

Example 3

Calculate:

(a) 4.7×5 **23.5**

(b) 6.4×2.3 **14.72**

(b) Since

$$\begin{array}{r} 64 \\ \times 23 \\ \hline 192 \\ 1280 \\ \hline 1472 \\ 1 \end{array}$$

then

$$6.4 \times 2.3 = \frac{64}{10} \times \frac{23}{10} = \frac{64 \times 23}{100} = \frac{1472}{100} = 14.72$$

Note: When dividing by 10, the decimal point is moved one place to the left; when dividing by 100 the decimal point is moved 2 places to the left, and so on.

Example 4

Calculate:

(a) $124 \div 4$ **31**

(b) $615 \div 5$ **123**

(b)
$$\begin{array}{r} 123 \\ 5 \overline{) 615} \end{array}$$

Again, you can use short-cut methods; for example, in (b) above:

$$\begin{aligned} 615 \div 5 &= 615 \div \left(\frac{10}{2}\right) \\ &= (2 \times 615) \div 10 \quad (\text{i.e. dividing by 5 is equivalent to multiplying by 2 and then dividing by 10}) \\ &= 1230 \div 10 \\ &= 123 \end{aligned}$$

However, using the *standard method* for division will *always* give the correct answer.

Example 5

A chocolate bar costs 32p. Calculate the cost of 7 chocolate bars.

The cost is 224p or £2.24.

Question 1

Calculate:

(a) 6×10

(b) 17×100

(c) 8×1000

(d) 14×10

(e) 321×10

(f) 4.2×10

(g) 3.6×100

(h) 14.7×10

(i) 0.461×100

Question 2

Calculate:

(a) $4700 \div 10$

(b) $360 \div 10$

(c) $421 \div 10$

(d) $16.8 \div 10$

(e) $476 \div 100$

(f) $5600 \div 100$

(g) $56.2 \div 100$

(h) $113.6 \div 100$

(i) $0.652 \div 10$

Question 3

Calculate:

(a) 15×6

(b) 34×2

(c) 82×7

(d) 37×5

(e) 19×6

(f) 82×4

(g) 16×12

(h) 24×14

(i) 32×24

(j) 66×47

(k) 84×28

(l) 62×29

Question 4

Calculate:

(a) 4.7×2

(b) 6.3×5

(c) 11.4×5

(d) 12.7×3

(e) 14.8×4

(f) 22.1×7

(g) 1.2×3.7

(h) 4.2×5.9

(i) 1.24×1.6

(j) 7.23×1.4

(k) 18.2×3.2

(l) 27.6×4.2

Question 5

Calculate:

(a) $12 \div 4$

(b) $81 \div 9$

(c) $42 \div 7$

(d) $24 \div 8$

(e) $64 \div 8$

(f) $45 \div 5$

(g) $75 \div 5$

(h) $86 \div 2$

(i) $98 \div 7$

(j) $128 \div 4$

(k) $248 \div 4$

(l) $497 \div 7$

(m) $1917 \div 9$

(n) $411 \div 3$

(o) $855 \div 5$

Question 6

Write out each of these calculations, filling in the missing numbers:

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(a) $6 \times \text{ } = 120$

(b) $\text{ } \div 8 = 7$

(c) $26 \times \text{ } = 962$

(d) $\text{ } \div 24 = 16$

Question 7

Write one number at the end of each calculation to make it correct:

(a) $6 \times 5 = 3 \times$

(b) $40 \times 10 = 4 \times$

(c) $5 \times 30 = 25 \times$

(d) $7000 \div 100 = 700 \div$

(e) $480 \div 20 = 2400 \div$

(f) $355 \times 12 = 1420 \times$

Question 8

A packet of crisps costs 32p. Calculate the cost of:

(a) 3 packets

(b) 7 packets

(c) 25 packets

Question 9

A meal at a burger bar costs £2.95. Calculate the cost of:

(a) 2 meals

(b) 3 meals

(c) 5 meals

Question 10

Joseph counts the number of sweets in a packet and find that there are 22.
How many sweets are there in total in:

(a) 6 packets?

(b) 100 packets?

(c) 17 packets?

Question 11

Three brothers are given 102 football stickers by their uncle. If they share them equally, how many stickers will they each have?

stickers.

Question 12

Four children are paid £42.60 for working as gardeners. How much will they each have if they share the money equally?

Question 13

Stamps are 19p each. Gwyn wants to buy 9 stamps. He knows that he will have to pay *less* than £2.

(a) Write down how you can tell that he will have to pay less than £2 *without* working out the exact answer.

Because 9 stamps cost less than stamps which cost £1.90, which is less than £2.

Note that there are other ways to tell that he will have to pay less than £2 without working out the exact answer.

(b) Gwyn buys 9 stamps at 19p each.

Without using a calculator, work out exactly how much he must pay.

Question 14

Gwen makes kites to sell. She sells the kites for £4.75 each.

(a) Gwen sells 26 kites.

Without using a calculator, work out how much money she gets for the 26 kites.

(b) Gwen has a box of 250 staples. She uses 16 staples to make each kite.
Without using a calculator, work out how many complete kites she can make using the 250 staples.

kites (with staples left over).

Question 15

Here are some buttons on cards.



(a) Marc bought 9 cards of *star* buttons.
How many buttons did he buy altogether?

buttons |

(b) Lee bought 8 cards of *round* buttons and 2 cards of *flower* buttons.
How many buttons did he buy altogether?

buttons |

(c) Sally bought *exactly* 16 buttons. They were all the *same sort* of button.
What sort of buttons did Sally buy?

- choose - ▼ buttons

(d) Pat bought *exactly* 15 buttons. They were all the *same sort* of button.
What sort of buttons did Pat buy?

- choose - ▼ buttons

(e) Pinder wants to buy *exactly* 20 buttons. They must all be the *same sort* of button.
Pinder could buy:
2 cards of *round* buttons.
Write down *two* other possible answers for Pinder.

cards of - choose - buttons

or

cards of - choose - buttons

Question 16

Megan wants to plant 24 seeds.

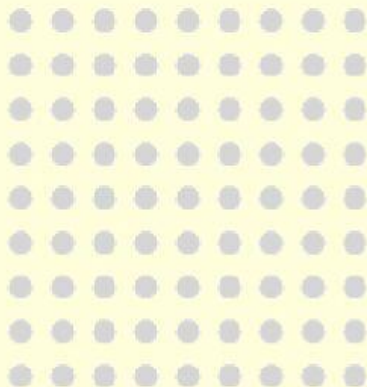
She can plant them in 2 rows, with 12 seeds in each row.



(a) Draw a diagram to show how she can plant 24 seeds in 3 rows, with the same number of seeds in each row.



(b) Draw a diagram to show a different way that Megan can plant 24 seeds in a different number of rows, with the same number of seeds in each row.



(c) Complete the table to show how many rows Megan can make with 24 seeds, and how many seeds there are in each row.

The number of rows in the table must increase in size order.