

12 Arithmetic: Revision

In this Arithmetic Unit, you will gain confidence with numerical calculations, particularly for calculations with whole numbers and with decimals. You will revise how to use arithmetic in everyday contexts, particularly with money calculations.

12.1 Arithmetic with Whole Numbers and Decimals

First we revise strategies for calculating answers to numerical problems.



Example

Calculate:

- (a) $3.4 + 4.75$
- (b) 49×10
- (c) 47.3×100
- (d) $52 \div 10$
- (e) $7.41 \div 100$
- (f) 3.6×4
- (g) $909 \div 3$
- (h) $10.4 \div 1.3$



Solutions

- (a) You can write this as
$$\begin{array}{r} 3.40 \\ + 4.75 \\ \hline 8.15 \end{array}$$
 (remember to keep the decimal points lined up)
- (b) $49 \times 10 = 490$
- (c) $47.3 \times 100 = 4730$ (since $47.3 \times 10 = 473$, etc.)
- (d) $52 \div 10 = 5.2$ (since $5.2 \times 10 = 52$)
- (e) $7.41 \div 100 = 0.0741$ (since $0.0741 \times 100 = 7.41$)
- (f) 3.6×4 can be written as
$$\begin{array}{r} 3.6 \\ \times 4 \\ \hline 14.4 \end{array}$$
 i.e. $3.6 \times 4 = 14.4$
- (g) $909 \div 3 = 303$

$$\begin{aligned}
 \text{(h)} \quad 10.4 \div 1.3 &= \frac{10.4}{1.3} \quad (\text{multiplying top and bottom by } 10) \\
 &= \frac{104}{13} \\
 &= 8
 \end{aligned}$$



Exercises

1. Find the solution to each of these calculations:

$$\begin{array}{r}
 \text{(a)} \quad 124 \\
 + 32 \\
 \hline \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{(b)} \quad 1047 \\
 + 189 \\
 \hline \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{(c)} \quad 3.24 \\
 + 5.63 \\
 \hline \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{(d)} \quad 18.7 \\
 - 2.6 \\
 \hline \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{(e)} \quad 1627 \\
 - 315 \\
 \hline \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{(f)} \quad 1742 \\
 - 351 \\
 \hline \\
 \hline
 \end{array}$$

$$\text{(g)} \quad 37 + 120$$

$$\text{(h)} \quad 157 + 36$$

$$\text{(i)} \quad 4.72 + 3.6$$

$$\text{(j)} \quad 6.4 + 8.21$$

$$\text{(k)} \quad 3.56 + 8.24$$

$$\text{(l)} \quad 6.3 + 8.71$$

$$\text{(m)} \quad 16.4 + 3.2$$

$$\text{(n)} \quad 18.8 - 7.3$$

$$\text{(o)} \quad 17.4 - 8.25$$

2. Find the solution to each of the following;

$$\text{(a)} \quad 37 \times 10$$

$$\text{(b)} \quad 4.71 \times 10$$

$$\text{(c)} \quad 8.62 \times 10$$

$$\text{(d)} \quad 57 \times 100$$

$$\text{(e)} \quad 8.71 \times 100$$

$$\text{(f)} \quad 8.2 \times 1000$$

$$\text{(g)} \quad 117 \div 10$$

$$\text{(h)} \quad 84 \div 10$$

$$\text{(i)} \quad 18.92 \div 10$$

$$\text{(j)} \quad 84 \div 100$$

$$\text{(k)} \quad 8.72 \div 1000$$

$$\text{(l)} \quad 0.421 \div 10$$

$$\text{(m)} \quad 8.201 \times 1000$$

$$\text{(n)} \quad 52.3 \div 1000$$

$$\text{(o)} \quad 18.62 \div 10$$

3. Find the solution to each of the following:

$$\text{(a)} \quad 82 \times 4$$

$$\text{(b)} \quad 8.7 \times 3$$

$$\text{(c)} \quad 5.2 \times 2$$

$$\text{(d)} \quad 64.7 \times 7$$

$$\text{(e)} \quad 3.8 \times 5$$

$$\text{(f)} \quad 19.2 \times 5$$

$$\text{(g)} \quad 16.4 \times 8$$

$$\text{(h)} \quad 3.21 \times 7$$

$$\text{(i)} \quad 8.47 \times 5$$

$$\text{(j)} \quad 3.61 \times 0.4$$

$$\text{(k)} \quad 5.7 \times 0.8$$

$$\text{(l)} \quad 4.2 \times 0.9$$

$$\text{(m)} \quad 6.3 \times 0.02$$

$$\text{(n)} \quad 8.42 \times 0.3$$

$$\text{(o)} \quad 9.71 \times 0.02$$

4. Find the solution to each of the following:

- | | | |
|-----------------------|-----------------------|-----------------------|
| (a) 88×12 | (b) 42×17 | (c) 56×14 |
| (d) 42×21 | (e) 37×31 | (f) 84×23 |
| (g) 4.2×8 | (h) 32×1.7 | (i) 84×1.4 |
| (j) 3.2×2.4 | (k) 8.7×0.5 | (l) 5.4×9.2 |
| (m) 1.26×3.2 | (n) 142×0.51 | (o) 3.21×4.2 |

5. Find the solution to each of the following:

- | | | |
|----------------------|---------------------|-----------------------|
| (a) $18 \div 3$ | (b) $24 \div 2$ | (c) $369 \div 3$ |
| (d) $848 \div 4$ | (e) $738 \div 6$ | (f) $924 \div 4$ |
| (g) $1332 \div 12$ | (h) $1107 \div 9$ | (i) $4344 \div 8$ |
| (j) $4860 \div 15$ | (k) $5304 \div 17$ | (l) $11\,277 \div 21$ |
| (m) $924 \div 11$ | (n) $10.44 \div 12$ | (o) $63.14 \div 14$ |
| (p) $17.28 \div 1.2$ | (q) $25.2 \div 2.1$ | (r) $9.63 \div 4.5$ |

12.2 Problems with Arithmetic

Here numerical calculations are put into practical contexts, particularly involving money.



Example 1

Sarah buys 8 ice creams costing 95p each. How much does she spend?



Solution

The answer is $8 \times 95\text{p}$
 $= 760\text{p}$
 $= £7.60$



Example 2

It takes Paul 22 minutes to wash a car. How many cars can he wash in 1 hour and 50 minutes?



Solution

The answer is given by the number of times that 22 minutes goes into 1 hour and 50 minutes (or 110 minutes).

$$\begin{aligned} \text{i.e. } 110 \div 22 &= \frac{110}{22} && \text{(divide top and bottom by 11)} \\ &= \frac{10}{2} \\ &= 5 \end{aligned}$$



Exercises

1. Sally is given £40 for her birthday. She spends £28.95 on a pair of rollerblades. How much money does she have left?
2. Clive joins a music club. He has to buy 4 CDs costing £13.99 each. How much will they cost altogether?
3. A shopkeeper buys 40 cyber-pets at £5.20 each and sells them for £8.00 each. How much profit does she make altogether?
4. Chocolate bars cost 35p each from a machine. At the end of the day there is £8.05 in the machine. How many chocolate bars have been sold?
5. Charlie loves 'Chocnut Bars'. They cost 31p each. She buys 7 bars. How much do they cost in total? How much change does she get from a £5 note?
6. Ben and his family are going camping. The camp site fee for their caravan is £18.50 per night. How much are the fees for the caravan for 14 nights?
7. Elizabeth needs 3.4 metres of material to make her costume for the school play. The material costs £3.20 per metre. How much does Elizabeth have to pay for her material?
8. Tickets for a school talent show cost £1.20 each. The total amount paid for tickets is £241.20. How many tickets were sold?
9. Tariq raised £26.70 on a 15-mile sponsored walk. How much was he sponsored for each mile?
10. Jenny makes some ginger beer. She fills 21 bottles each with 550 ml of ginger beer, and has 360 ml left over. How much ginger beer did she make altogether? (Try writing your answer in litres as well as millilitres.)