4 Arithmetic: Addition and Subtraction of Decimals

4.1 Addition and Subtraction

Here we first revise addition and subtraction of whole numbers.

Example 1

(a) $3 + (6 + 2) = 3 + 8 = 11$ since $6 + 2 = 8$

(b) $18 - (4 + 7) = 18 - 11 = 7$ since $4 + 7 = 11$

(c) $12 - (4 - 2) = 12 - 2 = 10$ since $4 - 2 = 2$

(d) $(12 - 4) - 2 = 8 - 2 = 6$ since $12 - 4 = 8$

Example 2

Calculate:

(a) $102.8 + 15.21$

(b) $92.69 - 10.4$

Solution

(a) To find $102.8 + 15.21$, line up the decimal points:

$$\begin{array}{r} 102.80 \\ +\ 15.21 \\ \hline 118.01 \end{array}$$

(b) To find $92.69 - 10.4$, line up the decimal points:

$$\begin{array}{r} 92.69 \\ -\ 10.40 \\ \hline 82.29 \end{array}$$

Exercises

1. Find:

(a)	$3 + 5$	(b)	$8 + 3$	(c)	$9 + 7$
(d)	$7 + 8$	(e)	$7 + 6$	(f)	$5 + 9$
(g)	$14 + 22$	(h)	$18 + 9$	(i)	$16 + 15$
(j)	$21 + 22$	(k)	$18 + 7$	(l)	$14 + 31$
(m)	$47 + 9$	(n)	$82 + 6$	(o)	$72 + 17$

2. Is each of these statements *true* or *false*?

(a)	$3 + 9 = 9 + 3$	(b)	$3 - 1 = 1 - 3$
(c)	$8 + 2 + 9 = 9 + 8 + 2$	(d)	$14 + 7 + 6 = 7 + 20$
(e)	$3 + 16 - 3 = 16$	(f)	$17 - 10 = 10 - 17$
(g)	$4 + 16 + 9 = 11 + 16$	(h)	$14 + 8 = 8 + 14$

3. Find:

(a)	$8 - 5$	(b)	$9 - 7$	(c)	$7 - 4$
(d)	$8 - 6$	(e)	$15 - 3$	(f)	$18 - 5$
(g)	$28 - 15$	(h)	$48 - 26$	(i)	$12 - 9$
(j)	$16 - 7$	(k)	$14 - 5$	(l)	$32 - 24$
(m)	$122 - 86$	(n)	$92 - 47$	(o)	$57 - 39$

4. Find:

(a)	$3 + (6 - 2)$	(b)	$5 - (8 - 7)$
(c)	$(3 + 6) - 8$	(d)	$15 - (4 + 2)$
(e)	$(17 - 1) - 4$	(f)	$23 - (4 - 2)$
(g)	$5 + (14 - 7) - 3$	(h)	$4 + (71 - 1) + 1$
(i)	$8 - (3 - 2) + 5$	(j)	$16 - (8 - 7) - 5$

5. Copy these sums and put brackets into each one, so that they are correct.

(a)	$5 - 8 - 7 = 4$	(b)	$6 - 3 + 2 = 1$
(c)	$5 + 7 - 2 - 1 = 11$	(d)	$14 - 7 - 3 - 2 = 8$

6. Find the sum of each set of numbers.

   (a) 18 and 15 (b) 6, 10 and 24

   (c) 42, 33 and 62 (d) 47, 82 and 37

7. Find the difference between each pair of numbers.

   (a) 18 and 15 (b) 22 and 47

   (c) 92 and 46 (d) 57 and 84

8. Miss Sharp teaches 2 classes in one morning. There are 32 children in the first class and 28 in the second.

   (a) How many children does she teach altogether?

   (b) How many more children are there in the first class than in the second?

9. There are 22 people on a bus.

   (a) At the next stop 5 people get off and 12 people get on. How many are now on the bus?

   (b) At the next stop nobody gets off and the bus leaves with 35 people on board. How many people got on at this stop?

10. This season Ali has scored 12 goals for his team. Last season he scored 18 goals for his team.

    (a) How many goals did he score in total in the two seasons?

    (b) What is the difference between the number of goals scored in each season?

11. Jane has 42 CDs. Sarah has 8 fewer than Jane. Nadia has 13 more than Sarah. How many CDs does Nadia have?

12. In one school there are 3 classes in Year 7. One class has 28 children, one has 29 children and the other has 31 children. How many children are there in Year 7?

13. Adam has 126 football stickers and Ben has 192. They need 250 stickers each to fill their albums.

    (a) How many more stickers does Ben need?

    (b) How many more stickers does Adam need?

    (c) How many stickers have the boys got in total?

14. There are 216 cars in a car park. In the next hour, 82 cars arrive and 73 cars leave. How many cars are in the car park at the end of the hour?

15. David buys 3 train tickets that cost £18, £46 and £78. How much does he spend altogether?

16. Alison goes on holiday on her motorbike. She keeps a record of how far she rides each day.

Day	1	2	3	4	5
Miles	120	38	59	62	119

What is the total distance she rides?

17. Use a quick method for each of these sums.

(a) $18 + 7 + 12$ (b) $108 + 19 + 12$

(c) $99 + 17 + 11$ (d) $17 + 19 + 13$

(e) $46 + 23 - 16$ (f) $128 - 15 - 13$

(g) $72 + 11 + 38$ (h) $19 + 6 - 9$

(i) $52 + 23 - 12$ (j) $16 + 18 - 6$

(k) $37 + 42 - 2$ (l) $68 + 19 + 1$

(m) $33 - 7 + 17$ (n) $67 + 18 + 13$

18. Find:

(a) $0.3 + 0.6$ (b) $0.8 + 0.1$

(c) $0.42 + 0.11$ (d) $1.2 + 3.7$

(e) $1.46 + 3.42$ (f) $5.7 + 2.4$

(g) $6.7 + 3.6$ (h) $5.12 + 8.99$

(i) $17.2 + 0.42$ (j) $5.6 + 3.21$

(k) $0.04 + 1.521$ (l) $6.3 + 4.72$

(m) $18.14 + 3.2$ (n) $16.5 + 3.218$

19. Find:

(a) $0.7 - 0.2$ (b) $0.9 - 0.6$

(c) $1.3 - 0.1$ (d) $4.2 - 3.1$

(e) $6.9 - 3.5$ (f) $8.9 - 7.3$

(g) 7.2 – 5.3 (h) 6.6 – 4.8

(i) 19.24 – 8.3 (j) 18.62 – 1.7

(k) 15.2 – 3.46 (l) 11.4 – 3.12

(m) 0.7 – 0.04 (n) 0.88 – 0.49

4.2 Dealing with Money

Example 1

Jason has a £5 note when he leaves home. He spends 27p on sweets in one shop and £3.50 on a book in another shop. How much money does he have left?

Solution

In total, Jason has spent, in £,

$$\begin{array}{r} 0.27 \\ +\ 3.50 \\ \hline £3.77 \end{array}$$

So the money he has left is

$$\begin{array}{r} 5.00 \\ -\ 3.77 \\ \hline £1.23 \end{array}$$

Exercises

TUCK SHOP PRICES	
Cans	45p
Choc-Bars	30p
Bubble-Choc	35p
Crisps	22p
Pasty	95p

1. (a) Find the cost of:
   (i) a Choc-Bar and a can of drink,
   (ii) a packet of crisps and a Bubble-Choc,
   (iii) a pasty and a can of drink.

   (b) Sarah spent exactly 67p.
   What did she buy?

2. Vijay paid for a 36p packet of sweets with a 50p coin. How much change did he get?

3. A magazine costs £2.35. How much change would you get from a £5 note if you bought the magazine?

4. Ben wants to buy a bike that costs £114.99. He has saved £98. How much more money does he need?

5. Sally buys a train ticket that costs £14.86. How much change does she get from a £20 note?

6. Halim buys a bus ticket that costs £2.80. How much change does he get from a £10 note?

7. Prakest spends £3.62 on Monday, £5.21 on Tuesday and £8.33 on Wednesday.
   (a) How much has he spent altogether?
   (b) If he had £20 to start with, how much has he got left?

8. Keith runs a take-away. This is his price list.
   (a) His first customer buys chips, a pasty and a drink. How much does this cost?
   (b) His next customer buys 2 sausages, chips and a drink. He gives Keith a £5 note. How much change does he get?
   (c) John has £1.20. He buys a pasty. How much money does he have left?

KEITH'S EATS

Chips	75p
Burger	£1.25
Sausage	35p
Pie	92p
Pasty	79p
Drink	42p

9. Gemma goes on a diet. Her mass drops from 64.82 kg to 52.36 kg. How much mass has she lost?

10. Rachel grows sunflowers. One plant is 1.32 m tall. In the next week it grows another 19 cm.
    (a) How tall is the plant now?
    (b) How much more must it grow to be 2 m tall?

11. To go on a fairground ride you must be 140 cm tall. Emma's height is 1.24 m. How much does she need to grow before she can go on this ride?

12. Karen goes to the shops twice. The first time she takes a £10 note and brings back £2.48. The second time she takes a £5 note and brings back £1.39. How much has she spent altogether?