## ANSWERS

## Chapter I NUMBERS TO IO

## Exercise IA Count

I. (a)

(c)

(d)

2. (a)

(b)
(c)


5
6


8

(d)


Exercise IB Compare Numbers (I)
I. (a)


There are $\underline{\text { more }}$ frogs than dragonflies.
(b)


There are fewer foxes than mice.

3. (a)

(b)

$x$
4. (a)

(b)


Exercise IB Compare Numbers (2)
I. (a) 3
(b) 2
(c) 2
(d) 3

2. (a) There are 2 more \begin{tabular}{l}
papayas <br>
\hline bananas <br>

than | papayas |
| :--- |
| bananas |$.. ~$

\end{tabular}

(b) There are 4 more fish | fats |
| :--- |
| fish |
| cats |

(c) There are 6 fewer tables | chairs |
| :--- |
| tables |
| chairs |

## Exercise IB Compare Numbers (3)

I.
(a) greater
(b) less
(c) less
2. (a) greater
(b) less
(c) greater
(d) less
(e) greater
3. (a) 5
(b) 8
4. (a) 4
(b) 5

## Exercise IB Compare Numbers (4)

I. (a)


I more than 3 is 4.


I more than 6 is 7.
(c)
 is 1 more than 7.
2.
(a) 4
(b) 8
(c) 3
(d) 1
(e) 3
(f) 8
3.
(a) 3
(b) 6
(c) 1
(d) 9
(e) 0

Exercise IB Compare Numbers (5)
I. (a)


1 less than 10 is 9.
(b)

(c)

I less than 6 is $\quad 5$.


8 is I less than 9 .
2.


Exercise IC Number Bonds (I)
I. (a)

(b)

(c)

2. (a)

(b)

3. (a) 3
(b) 5
(c) 1
(d) 3

Exercise IC Number Bonds (2)
I. (a) 5
(b) 5
(c) 2
(d) 2
(e) 4
(f) 9
2. (a) 8
(b) 8
(c) 7
(d) 5
(e) 5
(f) 4
(g) 6
(h) 7

Chapter Practice
I. D
2. (a)

(b)


弯 5




筑 3
3. There are more forks than spoons. How many more? 3
4. (a) Megan
(b) Caleb; Ben
(c) Ben
5. (a) greater
(b) less
6. (a) 6
(b) 4
(c) 8
(d) 6
7. (a) 8
(b) 2
(c) 3
(d) 6
8. A number that is less than 5 yet greater than 2 can be 3 or 4 .


Since 4 can be made up of 2 and 2 , the number Gina is thinking of is 4 .
9. Accept all correct answers. Example:


## Chapter 2 ADDITION WITHIN IO

## Exercise 2A Make Addition Stories (I)

I. (a) There are 6 cups on the table.

$$
\text { Peter places } 4 \text { more cups on the }
$$ table.

There are 10 cups on the table in all.
(b) Claire has 4 balloons.

She buys 3_more balloons.
Claire has 7 balloons in all.
2. (a) There are 5 rabbits.

2 more rabbits join them.
$5+2=7$
There are 7 rabbits in all.
(b) There are 3 books on the shelf.

Sophia puts 6 more books on the shelf.
$3+\underline{6}=\underline{9}$
There are 9 books on the shelf in all.

## Exercise 2A Make Addition Stories (2)

I. (a) There are _ 2 black shirts.

There are 3 gray shirts.
$2+3=5$
There are 5 shirts in all.
(b) There are 4 small fish.

There are 4 big fish.

$$
4+4
$$

There are 8 fish in all.
2. (a) 2 monkeys are on the tree.

4 monkeys are not on the tree.
$2+4=6$
There are 6 monkeys in all.
(b) A child is riding _ I bicycle.

There is nobody on $\quad 2 \quad$ bicycles.


There are 3 bicycles in all.

## Exercise 2B Ways to Add (I)

I.
(a) 7
(b) 4
(c) 6
(d) 9
(e) 5
(f) 5
2.
(a) 6
(b) 8
(c) 7
(d) 6
3.
(a) 2
(b) 2
(c) 4
(d) 4
4.
(a) $4+0=4$
The equation is false.
(b) $0+9=9$ The equation is true.

## Exercise 2B Ways to Add (2)

I.
$4+2=6$

$$
2+4=6
$$


(b) $6+\frac{4}{4}=10$
$\qquad$

2. (a) 9
(b) 8

(c) 10
(d) 4

(e) 5
(f) 9


## Exercise 2B Ways to Add (3)

I.

(c) true
(d) false
2. (a)
(b) 7
(c) 0
(d) 2
3. (a) Accept all correct answers. Example:

$+$

$=$ $\qquad$ +

(b) Accept all correct answers. Example:


3 $\qquad$
$\qquad$
$\qquad$
(c) Accept all correct explanations. Example: For (a), the answer to the addition equation on each side is 9 .
For (b), the answer to the addition equation on each side is 7 .

## Chapter Practice

I. B
2.

3. There are 2 frogs on a lily pad. 4 more frogs join them.

$$
2
$$ $+$ $\qquad$

$\qquad$
There are $\qquad$ 6 frogs in all.
4. (a)

(b) $5+3=\underline{8}$ There are 8 children in all.
5. (a)

(b) $\qquad$ $+$ $\qquad$
There are 5 butterflies in all.
6. (a)

(b)

$\qquad$
$\qquad$
$\qquad$ $+$ $+\underline{0}=$ or

$$
=6
$$

$$
\frac{1}{5}+\frac{5}{1}=\frac{6}{6} \text { or }
$$

$\qquad$ $+1=$ $\qquad$
2 $+4$ $=6$
4 $+$ $\qquad$

$$
=6
$$

$\qquad$

$$
-+3
$$

(c) In the last number bond, the numbers in both parts are the same so it will only give one addition equation.
7. Accept all correct answers.

Example:

8.



## Chapter 3 SUBTRACTION WITHIN IO

## Exercise 3A Make Subtraction Stories (I)

I. (a) There are 7 ants.

2 ants crawl away.

$$
\begin{aligned}
& 7-2=5 \\
& \text { There are } 5 \text { ants left. }
\end{aligned}
$$

(b) There are 5 mangoes.

Mason takes 2 mangoes away.
5 $-2=$ $\qquad$
There are 3 mangoes left.
(c) There are 4 tricycles.

David rides _ I tricycle away.
$4 \bigcirc 1=3$
There are 3 tricycles left.
(d) There are 10 birds in all.

4 birds fly away.
$10 \bigcirc 4$
There are 6 birds left.

## Exercise 3A Make Subtraction Stories (2)

I. (a) There are 9 eggs. 3 eggs are broken.


6 eggs are not broken.
(b) There are $7 \quad$ pieces of fruit. 2 of them are bananas.

7


There are 5 papayas.
(c) There are 8 animals in all.

There are 3 mice.


There are 5 cats.
(d) There are 9 elephants in all.
drinking.


4 elephants are not drinking.

## Exercise 3B Ways to Subtract (I)

I. (a) 6
(b) 4
(c) 4
(d) 6
(e) 1
(f) 6
2. (a) 4
(b) 5
(c) 3
(d) 6
3.
(a) 3
(b) 4
(c) 2
(d) 3
4. (a) 6 cannot be subtracted from 0 . The equation is false.
(b) $7-0=7$

The equation is true.

Exercise 3B Ways to Subtract (2)
I.
$7-5=$ $\qquad$

(b) 5 $-2=$ $\qquad$
$\qquad$

2. (a) 6
(b) 2

(c) 1
(d) 3

(e) 4
(f) 2


## Exercise 3B Ways to Subtract (3)

I. $6 \bigcirc 4=10$
$4 \bigcirc 6=10$
$10 \bigcirc 4=6$
$10 \cap 6=4$
2. $5+4=9$
$4+5=9$
$9 \bigcirc 4=5$
$9-5=5$
3. (a) $3+2=5$

$$
\text { + }+\frac{3}{2}=\frac{5}{2}=2
$$

(b) $8+0$


## Exercise 3C Compare Numbers by

 SubtractionI.
(a) $9-4=$ $\qquad$
There are 5 more saucers than cups.
(b) $8-5=3$

There are 3 more kittens than balls of yarn.
(c) $\qquad$
There are 2 fewer footballs than badminton rackets.
(d) $6-4=2$

There are $\qquad$ 2 fewer basketballs than children.

## Chapter Practice

I. C
2. 5
3. There are 8 bees at first.
$\qquad$ bees fly away.
$8-2=6$
There are $\qquad$ 6 bees left.
4. There are 8 sheep.

3 sheep are white.


5 sheep are not white.
5. (a)

(b) $\quad 9$
$-$ $\qquad$

$$
-
$$

$\qquad$
There are children left.
(c) $\qquad$
$\qquad$ $=\frac{7}{2}$
$\qquad$

$$
+2=
$$

$$
=9
$$

$$
2+7=9
$$

6. Accept all correct answers.

Example:

7. (a) No, I do not agree with Jane.

According to Jane's guess, the number of green marbles is only 3 fewer than the blue marbles which is incorrect.
(b)

| Blue <br> marbles |  |  |  | Green <br> marbles |
| :---: | :---: | :---: | :---: | :---: |
| 6 | - | 4 | $=$ | 2 |
| 5 | - | 4 | $=$ | 1 |

There are two possible answers: I green marble and 5 blue marbles, and 2 green marbles and 6 blue marbles.

## Chapter 4 NUMBERS TO 20

Exercise 4A Count to 20
I.
(a) 13
(b) 11
(c) 12
(d) 20
(e) 16
(f) 19
2.
(a) 11
(b) 16
(c) 12
(d) 17
(e) 13
(f) 18
(g) 14
(h) 19
3. (a)


13
4. (a)


10 and $\qquad$ 5 make $\qquad$
(b)

(c)

(d)


17 is 10 and 7.
(e)


12 is 10 and $\quad 2$.
5. (a) ।
(b) 10
(c) 10
(d) 10

## Exercise 4B Compare and Order Numbers

I. (a) II
(b) 13
(c) 14
2. (a) 16
(b) 19
(c) 18
3. (a) <
(b) $>$
(c) <
(d) $=$
4. 18
5. II
6. $20,18,15,14, I I$
7. Yes, I agree with Susan.

Accept all correct explanations.
Example:
16 is 10 and 6.
12 is 10 and 2.
Both numbers have a IO but different ones.
Since 6 is greater than 2,16 is greater than $I 2$.

## Chapter Practice

I. D
2. (a) 18
(b) 15
3.


10 and $\qquad$ 6 make $\qquad$ 16
4.
(a) >
(b) <
(c) $>$
(d) <
(e) >
(f) $=$
5. (a) 20; D
(b) $7 ; \mathrm{A}$
(c) $\frac{\mathrm{A}}{\text { least }}, \frac{\mathrm{E}}{\mathrm{C}}, \frac{\mathrm{B}}{\text { greatest }}$
6. 17
7. 15
8.

\section*{| 13 | 14 | 15 | 16 |
| :--- | :--- | :--- | :--- |}

Abel has 13 toy cars.
Tania and Chloe have more toy cars than Abel.
Tania and Chloe have fewer than 16 cars each.
They can have 14 or 15 toy cars.
Tania has fewer toy cars than Chloe.
Tania has $\frac{14}{15}$ toy cars.
Chloe has 15 toy cars.
9. Beth: I9; Tim: I5

| 15 | 16 | 17 | 18 | 19 | 20 |
| :--- | :--- | :--- | :--- | :--- | :--- |

For Beth, the missing number is greater than 18 but less than 20.
So that leaves I9.

| 13 | 14 | 15 | 16 | 17 |
| :--- | :--- | :--- | :--- | :--- |

For Tim, the missing number is less than 16 but greater than 14.
So that leaves I5.

Chapter 5 ADDITION AND SUBTRACTION WITHIN 20

## Exercise 5A Addition (I)

I. (a) II
(b) II
(c) 12
(d) II
(e) 12
(f) 13
2.
(a) 13
(b) 16
(c) 19
(d) 17
3. (a) $2 ; 2$
(b) 2
(c) 3
(d) 4
(e) 3
(f) 4
(g) 4
4. (a) 15
(b) 20
(c) 3
(d) 8

## Exercise 5A Addition (3)

I.
(a) $5+6=11$

(b) $8+7=\underline{15}$

2. (a) Way I

Way 2

(b) Way I

(b) II
(d) 12
(f) 13

## Exercise 5A Addition (4)


(b) 20
(c) 14
3. (a) 16
(c) 14
(e) 17
I.
 (b)
2.

19
(b) $6+11=17$

(c) $5+13=\underline{18}$
$\qquad$
(d) $13+3=16$
3.
(b) $1+7=\underline{8}$ $11+7=\underline{18}$

$$
1+17=18
$$

(a) $4+2=\underline{6}$
$14+2=16$
$4+12=\underline{16}$
-
(b)

$$
6+14=\underline{20}
$$

I. (a)

$12+5=\underline{17}$

3. (a)

$\qquad$ (b) $7+8=\underline{15}$


## (c) $9+8=17$

(d) $6+5=11$

4. (a) 5
(b) 14
5. (a) 12
(b) 10
(c) 15
(d) 19
(e) 9
(f) $\quad 13$

## Exercise 5A Addition (5)

I.
(a) 10;14
(b) $10 ; 17$
(c) $10 ; 16$
(d) $10 ; 11$
(e) $10 ; 18$
(f) $10 ; 20$
(g) $10 ; 18$
(h) $10 ; 15$
2.
(a) 17
(b) 13
(c) 15
(d) 14
(e) 20
(f) 19
3. (a) 2
(b) 9
(c) 9
(d) 5
(e) 6
(f) 3

## Exercise 5B Subtraction (I)

I.

2. (a) $4 ; 14$

(c) $1 ; 11$
(b) $5 ; 15$
(e) $2 ; 12$
(d) $4 ; 14$
(f) $5 ; 15$
3. (a) 10
(b) 10
(c) 13
(d) 13
(e) II
(f) $\quad 12$

## Exercise 5B Subtraction (2)

I.


$$
15-9=6
$$

2. 



$$
13-7=\underline{6}
$$

3. 


(d) $13-7=6$

4.


## Exercise 5B Subtraction (3)

I. (a) 12
(b) 7
(c) 9
(d) 12
(e) 14
(f) 8
2. (a) $2 ; 2$
(b) 3
(c) 2
(d) 4
(e) 1
(f) 3
(g) 4
3.


Exercise 5B Subtraction (4)
I.
(a)

| $\frac{7}{10}+\frac{10}{7}$ | $=\frac{17}{17}$ |
| ---: | :--- |
| $\frac{17}{17}-\frac{10}{7}$ | $=\frac{7}{10}$ |

(b)

$$
\begin{aligned}
& \frac{6}{9}+\frac{9}{6}=\frac{15}{15} \\
& \frac{15}{15}-\frac{9}{6}=\frac{6}{9} \\
& \hline
\end{aligned}
$$

(c)


| $\frac{3}{11}+\frac{11}{3}=\frac{14}{14}$ |
| :--- |
| $\frac{14}{14}-\frac{11}{3}=\frac{3}{11}$ |

(d)


$$
\begin{aligned}
& \frac{8}{\frac{12}{20}+\frac{12}{8}}=\frac{20}{20} \\
& \frac{12}{20}-\frac{8}{8}=\frac{12}{8}
\end{aligned}
$$

2. 
3. 

(a) $7+$
$+\quad 8=$
15
$\frac{8}{15}+$
$+\frac{7}{7}=$
$\begin{aligned} & =15 \\ & =\frac{15}{} \\ & =7\end{aligned}$
(b) $\frac{11}{6}+$
$+\frac{6}{+11}=$
$\begin{aligned} & =\frac{17}{17} \\ & =\frac{17}{6} \\ & =11 \\ & =19\end{aligned}$
(c) $\frac{9}{10}+$
$+\frac{10}{9}=$
$\frac{19}{19}$
$\overline{19}^{+}$
$-\frac{10}{-}=$
$\overline{17}^{+}$
$-11=$
$\frac{11}{6}=$
$\begin{array}{r}6 \\ \hline 11 \\ \hline\end{array}$
$19-$
$-\frac{9}{6}=$
(d) $\frac{12}{6}+$
$=$
$\begin{array}{r}\hline 18 \\ \hline 18 \\ \hline 6 \\ \hline 12 \\ \hline\end{array}$

## Chapter Practice

I. C
2.
(a) true
(b) false
(c) true
(d) false
3.
(a) 14
(b) 6
(c) 12
(d) II
(e) 8
(f) II
(g) 16
(h) 15
4. (a) 10

$\qquad$
$8+10=18$
$18 \bigcirc 8=10$
$18-10=8$
(b) $6+7=13$

$$
\begin{aligned}
& 7 \bigcirc 6=13 \\
& 13 \bigcirc 6=7
\end{aligned}
$$

$$
13 \bigcirc 7=6
$$

5. 


(a)

(b)

6. (a) I can subtract by making IO and 2 from I2. Next, I subtract 4 from 10 .
$10-4=6$
Then $I$ add 2 to 6.
$6+2=8$.
So $12-4=8$.
(b) Way I

Count back to subtract.

$12-4=8$
Way 2


So $12-4=8$.
7. Way I

Rearrange to make 10 .
$2+5+8=2+8+5$

$$
\begin{aligned}
& =10+5 \\
& =15
\end{aligned}
$$

Way 2
Use double facts to add.

$$
\begin{aligned}
2+5+8 & =7+8 \\
& =7+7+1 \\
& =14+1 \\
& =15
\end{aligned}
$$

8. 



## Chapter 6 ADDITION AND SUBTRACTION WORD PROBLEMS

Exercise 6A Part-Whole Problems (I)
I.

$+$ $\qquad$ $=11$
James has II erasers now.
2.


$\qquad$ $=$ $\qquad$
Tiffany has $\qquad$ 12 toy cars now.
3.
 $7=$ $\qquad$ 16

The children make $\qquad$ sandwiches in all.
4.


Ms. Jefferson had 15 porcelain plates at first.

Exercise 6A Part-Whole Problems (2)
I.

hole Problem

> s (2)


Jenny has 12 pencils left.
2. II

$\qquad$ $=$ $\qquad$
There are $\qquad$ black files.
3. $19-5=5$

Alex has 14 marbles.
4. 14

$\qquad$
Eva takes 9 pies.

## Exercise 6B Comparison Problems (I)

I. $12+\frac{5}{}+17$

Helen has 17 bracelets.
2. $8+7=$ $=15$
Jennifer has $\qquad$ color pencils.
3. $\frac{9}{+\infty} \frac{7}{16}=\frac{16}{\text { Emilia folds }}$
4. No, I do not agree with Liam.


There are 14 cows on the farm.

## Exercise 6B Comparison Problems (2)

I. $13 \bigcirc 5=-8$ Leonard has 8 toy airplanes.

2
2. $-(-6$

There are 5 children at the swings.
3.


Chris reads 7 more storybooks than Natalie.
4. $20-9 \quad 9=11$ There are II fewer tulips than sunflowers.

## Chapter Practice

I. A
2. C
3. D
4.


There are 7 elephants.
5.

$\qquad$ - $\qquad$
$\qquad$
Sarah gives Jon $\qquad$ 4 marbles.
6.


The chicken lays 17 eggs.
7.


Ariel has $\qquad$ 16 stamps.
8.

9. No, I do not agree with Oscar.


Victoria


Ethan has 7 more stickers than Victoria.
10.

| Number of Shirts <br> Donated by <br> Elijah | Number of Shirts <br> Donated by <br> Hannah | Number of <br> Shirts Donated <br> In All |  |
| :---: | :---: | :---: | :---: |
| 9 | $9-3=6$ | $9+6=15$ |  |
| 10 | $10-3=7$ | $10+7=17$ |  |
| II | $11-3=8$ | $11+8=19$ |  |
|  |  |  |  |
|  |  |  |  |

## Chapter 7 LENGTH

## Exercise 7A Compare Lengths

I. Accept all correct answers. Examples:
(a)

(b)

(b)

3. (a) $R$
(b) $Q$
(c) $\frac{\mathrm{R}}{\text { shortest }}, \frac{\mathrm{P}}{\text { longest }}$
4. (a) C
(b) B
(c) B
(d) C
(e) $\frac{\mathrm{B}}{\text { longest }}, \frac{\mathrm{D}}{\mathrm{A}}, \frac{\mathrm{C}}{\text { shortest }}$
5. $\frac{\text { Adam }}{\text { tallest }}, \frac{\text { Clara }}{}, \frac{\text { Benjamin }}{\text { shortest }}$
6. (a) No, there are two cases.


So I cannot tell for sure which is shortest.
(b) Rope R is longer/shorter than Rope P .

## Exercise 7B Measure Length

I. (a) 6
(b) 4
(c) 7
2. (a) 6
(b) 3
(c) 2
(d) 4
3. (a) A
(b) 9
(c) 7
(d) B

## Chapter Practice

I. C
2. comb
3. (a) Circle Rope C.
(b) Cross out Rope B.
4. 13
5. (a) 4
(b) 12
6. (a) shorter
(b) taller
(c) as tall as
(d) shortest
(e) tallest
7. (a) Accept all strips that are 5 or 6 squares long.
(b) Accept all strips that are fewer than 4 squares long.
(c) Accept all strips that are more than 7 squares long.

Example:

8. I do not agree with Emma. They are using different clips to measure the lengths.
9. $X$

y


Z

$\frac{\mathrm{X}}{\text { longest }}, \xrightarrow{Z}, \frac{\mathrm{Y}}{\text { shortest }}$

