

Mathematics Enhancement Programme

TEACHING SUPPORT: Year 4

EXERCISES

The following exercises are taken from Year 4 Practice Books 4a and 4b. They illustrate more of the problem-solving questions rather than the routine ones. Do try these questions before looking at the solutions and suggested strategies.

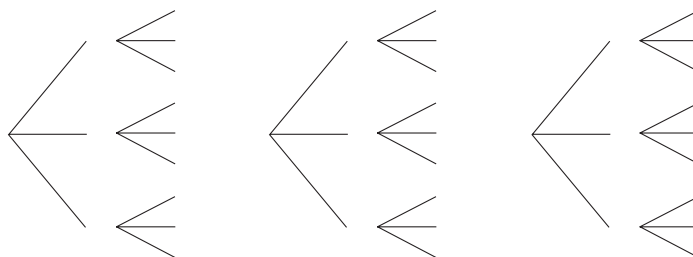
1. Write the numbers which have:
 - a) an even digit as their hundreds digit and 500 as their nearest ten.
 - b) an odd digit as their hundreds digit and 500 as their nearest ten.
 - c) the smallest even digit as their tens digit and 1010 as their nearest ten.

(p2, Q5)

2. How many 3-digit numbers can you make from these digits?

5	6	1
---	---	---

- a) Complete the tree diagrams.



- b) List the numbers.

(p5, Q2)

3. *I thought of a number, then added 900.
The result was a number less than 1000.*

Write \checkmark if you think the statement is true and \times if you think it is false.

- a) The number I first thought of must be less than 100.
- b) The number I first thought of must be less than 99.
- c) The number I first thought of could be equal to 99.
- d) The number I first thought of cannot be more than 99.
- e) The number I first thought of could be equal to 10.
- f) The number I first thought of cannot be 100.

(p7, Q4)

4. Estimate the product first, then do the multiplication.

a) $E:$ $E:$ $E:$ $E:$

7	3	×	6

1	4	6	×	3

2	4	6	×	3

3	4	6	×	3

b) $E:$ $E:$ $E:$ $E:$

4	7	×	8

1	4	7	×	3

1	4	7	×	6

2	4	7	×	3

(p14, Q1)

5. Write the whole numbers up to 1000 which have 4 as the sum of their digits.

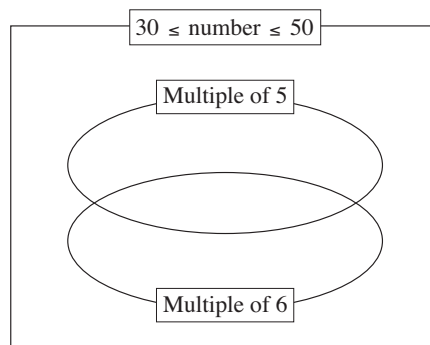
(p15, Q1)

6. Are the statements true or false? Write T for true and F for false in each box.

- a) Every number which is a whole hundred is divisible by 2.
- b) There is an even number which has 5 as its units digit.
- c) Every number which is divisible by 5 is a whole ten.
- d) 217 is divisible by neither 5 nor 2.
- e) Every number which is a whole ten is divisible by 2 and by 5.

(p29, Q1)

7. Write the whole numbers from 30 to 50 in the correct set.



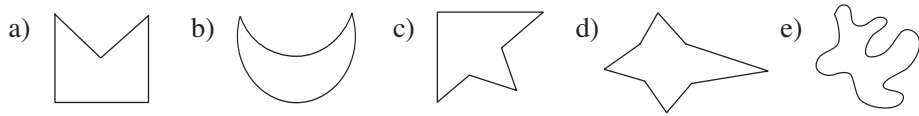
(p30, Q4)

8. Write in the boxes the numbers described.

- a) The smallest 4-digit: i) number ii) odd number
- b) The greatest 4-digit: i) number ii) odd number
- c) The greatest 4-digit number divisible by: i) 5 ii) 10
- d) The greatest 4-digit number divisible by 100 which has the same digit in its hundreds and thousands columns.

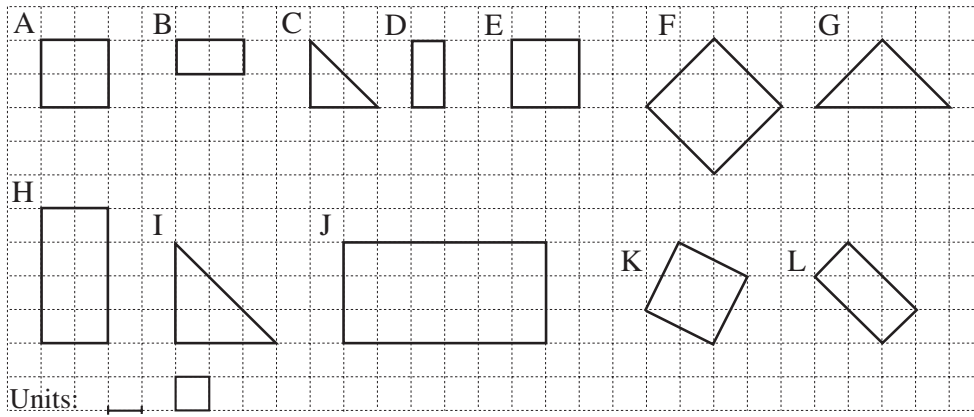
(p33, Q4)

12. Complete these non-convex shapes so that they become **convex** shapes.



(p52, Q4)

13.



List the **similar** shapes.

Write the **area** inside each shape and the length of the **perimeter** below.

(p56, Q1)

14. Complete the fractions.

a) $\frac{1}{2} = \frac{\square}{4} = \frac{4}{\square} = \frac{\square}{6} = \frac{\square}{10} = \frac{10}{\square} = \frac{\square}{100} = \frac{\square}{\square}$

b) $\frac{1}{4} = \frac{\square}{16} = \frac{2}{\square} = \frac{\square}{20} = \frac{8}{\square} = \frac{25}{\square} = \frac{\square}{\square} = \frac{\square}{\square}$

c) $\frac{1}{3} = \frac{2}{\square} = \frac{\square}{12} = \frac{3}{\square} = \frac{\square}{15} = \frac{\square}{24} = \frac{\square}{30} = \frac{100}{\square} = \frac{\square}{\square}$

(p80, Q2)

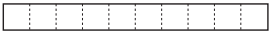
15. a) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \square$ b) $\frac{3}{8} + \frac{2}{8} = \square$ c) $\frac{7}{12} - \frac{2}{12} = \square$

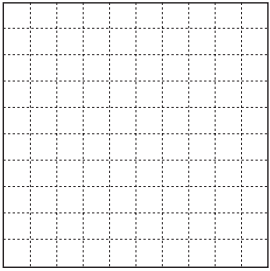
d) $\frac{11}{20} - \frac{9}{20} = \square$ e) $\frac{7}{10} + \frac{3}{5} = \square$ f) $\frac{3}{4} - \frac{3}{8} = \square$

(p83, Q4)

16. Compare the pairs of numbers and fill in the missing signs. (<, >, =)

Use the diagrams to help you.

a) $\frac{2}{10} \square \frac{7}{10}$ $\frac{8}{10} \square 0.9$ $0.6 \square 0.3$ 

b) $\frac{15}{100} \square \frac{72}{100}$ $\frac{43}{100} \square 0.70$ $0.52 \square 0.49$ 

c) $0.04 \square 0.1$ $\frac{2}{10} \square \frac{18}{100}$ $0.27 \square 0.3$

d) $\frac{1}{5} \square 0.2$ $\frac{2}{5} \square 0.3$ $\frac{3}{10} \square 0.6$

e) $\frac{1}{5} \square \frac{17}{100}$ $\frac{3}{10} \square 0.51$ $\frac{78}{100} \square 0.53$

(p93, Q3)

17. Which quantity is greater? Fill in the missing signs.

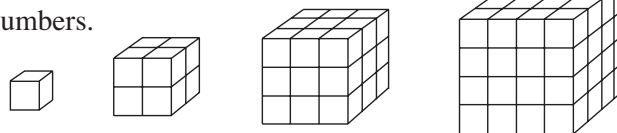
a) $\frac{3}{10}$ m \square 54 cm b) 0.9 kg \square 90 g c) $\frac{1}{6}$ hour \square 30 min

d) £150 20 p \square £150.2 e) $5\frac{7}{100}$ litres \square 5 litres 700 ml

f) $4\frac{1}{2}$ weeks \square 29 days g) 84.3 cm \square 843 mm \square 8.43 m

(p105, Q3)

18. Imagine these cubes built from unit cubes. Fill in the missing numbers.



Length of 1 edge \rightarrow	1	2	3	4	5	6
Area of cube \square						
Volume of cube \square						

(p109, Q1)

19. Follow the example. Complete the sentences. Use the number line to help you.

a) 8°C is greater than 3°C by 5°C . $8 - 3 = 5$, $5 + 3 = 8$

b) 3°C is \square than 8°C by 5°C . $3 - 8 = \square$, $\square + 8 = 3$

c) 8°C is greater than 0°C by \square . $8 - 0 = \square$, $\square + 0 = 8$

d) 3°C is greater than -2°C by \square . $3 - (-2) = \square$, $\square + (-2) = 3$

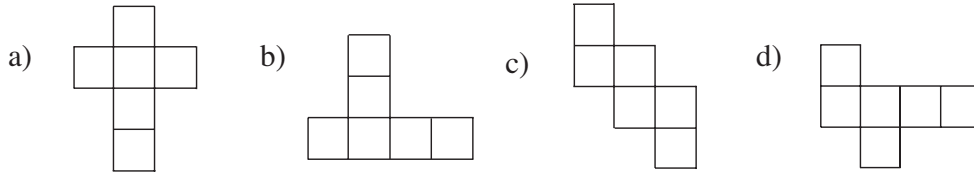
e) -2°C is less than 3°C by \square . $-2 - 3 = \square$, $\square + 3 = -2$

f) -2°C is \square than -5°C by 3°C . $-2 - (-5) = \square$, $\square + (-5) = -2$

(p134, Q4)

- 20.** In an opaque bag there are 10 *black* and 30 *white* marbles.
 What is the smallest number of marbles you must take out of the bag (with your eyes closed) to be **certain** of getting 2 marbles which are the same colour?
 (p137, Q4)

- 21.** Circle the nets which can make a cube. Colour their opposite faces in the same colour.



(p138, Q5)

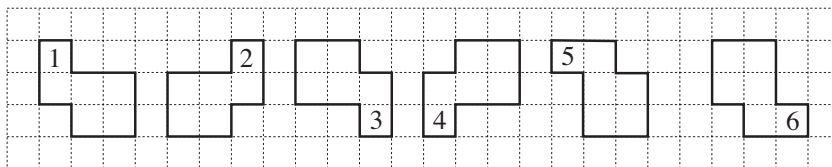
- 22.** What is the smallest natural multiple of 2, 3, 4, 5 and 8?
 (p140, Q2)

- 23.** In an opaque bag, there are 5 *black*, 10 *red* and 5 *white* marbles.
 What is the smallest number of marbles you must take out of the bag (with your eyes closed) to be **certain** of getting:

- a) 3 marbles which are the same colour
 - b) a *red* marble?
- (p140, Q3)

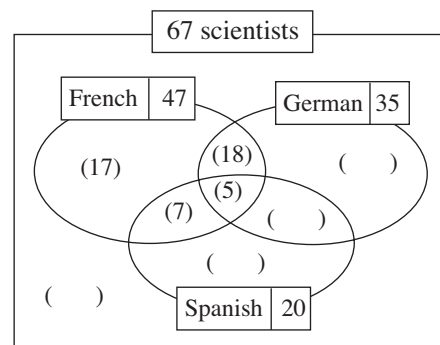
- 24.** List in your exercise book all the numbers between 999 and 10 000 which have 4 as the sum of their digits. How many did you find?
 (p140, Q4)

- 25.** These shapes are **congruent**. What has been done to *Shape 1* to make *Shape 2*, *Shape 2* to make *Shape 3*, and so on? Write it in your exercise book.



(p141, Q2)

- 26.** Among 67 scientists at a conference,
 47 speak French,
 35 speak German,
 20 speak Spanish,
 12 speak French and Spanish,
 11 speak German and Spanish,
 5 speak all three languages.



- a) Complete the *Venn* diagram.
- b) How many scientists speak:
 - i) only French
 - ii) only German
 - iii) only Spanish?
- c) How many scientists speak Spanish and German but not French?
- d) How many scientists speak neither Spanish nor German nor French?

(p151, Q3)

27. Circle the natural numbers up to 100 which have only two factors.

(e.g. the only factors of **7** are 7 and 1)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

We call these numbers **prime numbers**. List them in increasing order.

(p161, Q2)

28. The perimeter of a triangle is 10 cm and the length of each side is a whole cm.

Are these statements true or false? Write a \checkmark if true and a **X** if false.

- a) The triangle has only one side which is 1 cm long.
- b) The triangle could have only one side which is 2 cm long.
- c) The triangle has only one side which is 3 cm long.
- d) The triangle has only one side which is 5 cm long.

(p173, Q1)