



# MATHEMATICS

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# WORKSHEETS

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# JUNIOR SCHOOL

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# 1 NUMBER SENTENCES

## 1.1 State facts

The number 80 can be formed by adding up 8 tens:

$$10 + 10 \rightarrow 20 + 10 \rightarrow 30 + 10 \rightarrow 40 + 10 \rightarrow 50 + 10 \rightarrow 60 + 10 \rightarrow 70 + 10 = 80$$

The number 80 can also be formed by adding up 5 sixteens:

$$16 + 16 \rightarrow 32 + 16 \rightarrow 48 + 16 \rightarrow 64 + 16 = 80$$

We can say: “Adding up 8 tens gives the same result as adding up 5 sixteens”.

A number sentence like this is called a **statement of equivalence**.

The number sentence tells us that two *different actions* will produce the *same result*. This number sentence can also be written in symbols:

$$10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 16 + 16 + 16 + 16 + 16$$

$8 \times 10 = 5 \times 16$  is a shorter sentence that gives the same information.

- Write each number sentence in symbols.
  - Adding up 20 fives gives the same result as adding up 10 tens.
  - 25 times 8 gives the same result as 4 times 50.
  - The difference between 930 and 970 is the same as the difference between 430 and 470.
- Which of these number sentences are false?
  - $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 = 6 + 6 + 6 + 6 + 6 + 6$
  - $9 + 9 + 9 + 9 + 9 + 9 = 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6$
  - $5 + 5 + 5 + 5 + 5 + 5 = 6 + 6 + 6 + 6 + 6$
  - $9 \times 6 = 6 \times 9$
  - $5 \times 6 = 6 \times 5$
  - $9 \times 9 = 6 \times 6$

“False” means not true.

When numbers are multiplied, any of the numbers can be taken first. The answer is the same.

Richard and Thandi had to calculate  $12 - 3 + 5 - 2$  and  $3 \times 10 + 5 \times 2$ .

Richard worked like this:

$$12 - 3 = 9$$

$$9 + 5 = 14$$

$$14 - 2 = 12$$

$$3 \times 10 = 30$$

$$30 + 5 = 35$$

$$35 \times 2 = 70$$

Thandi worked like this:

$$3 + 5 = 8$$

$$12 - 8 = 4$$

$$4 - 2 = 2$$

$$3 \times 10 = 30$$

$$5 \times 2 = 10$$

$$30 + 10 = 40$$

Richard and Thandi were very confused when they compared their answers!



To avoid confusion like this, people all over the world follow certain agreements about instructions.

If instructions include only addition and subtraction, the calculations are done from left to right.

**Example:**  $12 - 3 + 5 - 2$  means you have to do this:

$$12 - 3 = 9$$

$$9 + 5 = 14$$

$$14 - 2 = 12$$

If instructions include multiplication, all multiplications are done before additions and subtractions.

**Examples:**  $3 \times 10 + 5 \times 2$  means you have to do this:

$$3 \times 10 = 30$$

$$5 \times 2 = 10$$

$$30 + 10 = 40$$

$3 \times 10 - 5 \times 2$  means you have to do this:

$$3 \times 10 = 30$$

$$5 \times 2 = 10$$

$$30 - 10 = 20$$

3. Calculate.

(a)  $12 - 3 + 5 - 2$

(b)  $20 + 5 - 10 - 6 + 4$

(c)  $10 + 5 \times 5 - 3 + 7$

(d)  $10 + 5 \times 5 - 3 \times 5 + 7$

4. Which of these number sentences are false?

(a)  $100 - 50 + 30 = 100 - 80$

(b)  $3 \times 10 + 5 \times 2 = 70$

(c)  $3 \times 10 + 5 \times 2 = 40$

(d)  $3 \times 3 + 5 \times 3 = 8 \times 6$

(e)  $3 \times 3 + 5 \times 3 = 8 \times 3$

(f)  $3 \times 30 + 5 \times 30 = 8 \times 30$

(g)  $3 \times 30 + 5 \times 30 = 10 \times 30 - 2 \times 30$

Brackets are used to indicate that certain calculations should be done first.

**Examples:**

In  $3 \times (4 + 6)$  the brackets are used to tell you that you must calculate like this:

$$4 + 6 = 10 \text{ followed by } 3 \times 10 = 30$$

The instructions  $3 \times 4 + 6$  as well as  $6 + 3 \times 4$  tell you that you should calculate like this:

$$3 \times 4 = 12 \text{ followed by } 12 + 6 = 18$$

$12 - (3 + 5) - 2$  means you have to do this:

$$3 + 5 = 8 \quad 12 - 8 = 4 \quad 4 - 2 = 2$$

5. Which of these number sentences are false?

(a)  $12 - (3 + 5) - 2 = 12 - 3 + 5 - 2$

(b)  $3 \times 30 + 5 \times 30 = 3 \times (30 + 5) \times 30$

(c)  $3 \times 30 + 5 \times 30 = (3 \times 30) + (5 \times 30)$

(d)  $5 \times (20 + 3) = 5 \times 20 + 3$

(e)  $5 \times (20 + 3) = 5 \times 20 + 5 \times 3$

(f)  $5 \times (20 + 3) = 5 \times 18 + 5 \times 5$

(g)  $5 \times (20 - 3) = 5 \times 20 - 5 \times 3$

(h)  $(20 + 3) \times 5 = 20 \times 5 + 3 \times 5$

6. Which of these number sentences are false?

(a)  $(1 + 3) + (5 + 7) + 9 = 1 + (3 + 5) + (7 + 9)$

(b)  $(10 + 8) + 6 = (8 + 6) + 10$

(c)  $(10 + 8) + 6 = (6 + 10) + 8$

When more than two numbers have to be added, you can add any two of them first.

7. Which of these number sentences are false?

(a)  $500 + 300 + 200 = 200 + 500 + 300$

(b)  $500 + 300 + 200 = 500 + 200 + 300$

(c)  $500 + 300 - 200 = 500 + 200 - 300$

(d)  $20 + 10 - 5 = 20 - 5 + 10$

(e)  $(60 + 3) + (10 + 7) = (60 + 10) + (3 + 7)$

(f)  $(60 - 7) + (10 - 3) = (60 - 10) + (7 - 3)$

(g)  $(60 + 7) - (10 + 3) = (60 - 10) + (7 - 3)$

8. Which of the following actions will produce the same result?

Write your answer in the form of number sentences, for example  $3 \times 6 = 2 \times 9$ .

(a)  $6 \times 1\,000$

(b)  $60 \times 10$

(c)  $60 \times 100$

(d)  $600 \times 10$

9. Suppose you want to know how much  $20 \times 63 + 20 \times 37$  is.

Which of the following actions will produce the correct answer, and which will not?

(a)  $20 \times 100$


(b)  $20 \times 60 + 20 \times 3 + 20 \times 30 + 20 \times 7$

(c)  $20 \times 80 \times 3 + 20 \times 50 \times 7$

(d)  $20 \times 60 + 20 \times 40$

## 1.2 Solve and complete number sentences

1. Which number is hidden behind the red stickers?

$$21 + \text{[red sticker]} = 40$$


2. Write down the number that is hidden behind the red stickers in each number sentence.

(a)  $30 + \text{[red sticker]} = 50$

(b)  $31 + \text{[red sticker]} = 50$

(c)  $32 + \text{[red sticker]} = 50$

(d)  $35 + \text{[red sticker]} = 50$

(e)  $30 + \text{[red sticker]} = 60$

(f)  $20 + \text{[red sticker]} = 60$

(g)  $40 + \text{[red sticker]} = 60$

(h)  $\text{[red sticker]} + 40 = 60$

(i)  $\text{[red sticker]} + 40 = 100$

(j)  $\text{[red sticker]} + 50 = 100$

(k)  $\text{[red sticker]} + 30 = 100$

(l)  $\text{[red sticker]} + 20 = 100$

(m)  $25 + \text{[red sticker]} = 100$

(n)  $75 + \text{[red sticker]} = 100$

(o)  $65 + \text{[red sticker]} = 100$

(p)  $88 + \text{[red sticker]} = 100$

3. (a) Choose any two numbers for the blue and yellow stickers. The two numbers together must make 100.

$$\text{[blue sticker]} + \text{[yellow sticker]} = 100$$

Write your answer as a number sentence, for example  $90 + 10 = 100$ .

- (b) Write a different number sentence that shows two other numbers that add up to 100.
- (c) Write any other ten different number sentences that each show two numbers that add up to 100.
- (d) Write ten different number sentences that each show two numbers that add up to 300.
- (e) Write ten different number sentences that each show two numbers that add up to 700.

4. When you add 3 to the number behind the blue stickers, the answer is 88.

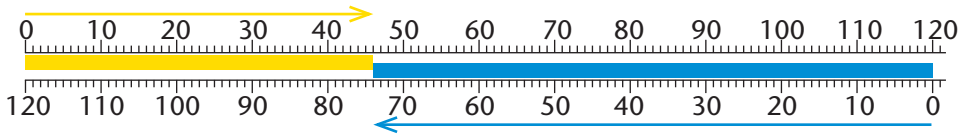
$$\blacksquare\blacksquare + 3 = 88$$

What will the answer be if you add 5 to the number behind the blue stickers?

$$\blacksquare\blacksquare + 5 = ?$$

5. Simanga worked out that  $46 + 74 = 120$ .

You can see in the diagram below that his answer is right.



(a) Is it true that  $120 - 74 = 46$ ?

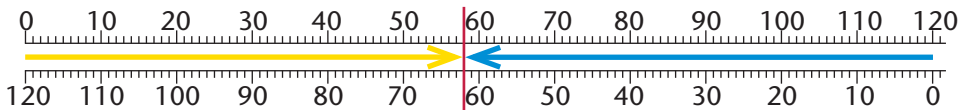
(b) Is it true that  $120 - 46 = 74$ ?

6. Look at the diagram below. It shows that  $58 + 62 = 120$ .

Complete these number sentences:

(a)  $120 - 62 = \square$

(b)  $120 - 58 = \square$



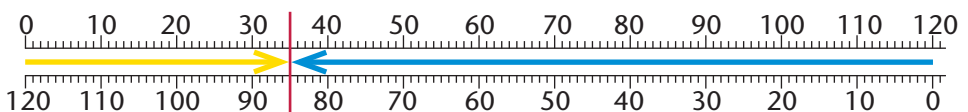
7. Nontobeko knows that  $78 - 35 = 43$ .

(a) How much is  $43 + 35$ ?

(b) How much is  $78 - 43$ ?

8. In question 5 you can read three number sentences that describe what the diagram shows.

Write three number sentences to describe what the diagram below shows.



# 1 NUMBER SENTENCES

## 1.1 State addition and subtraction facts

If something is not true, we say it is false.

For example, this sentence is false:

*A bird has eight legs.*

Sentences such as the following are called **number sentences**:

*If you add 3 to 10 you get the same as when you add 4 to 9.*

We can also write number sentences in symbols:

$$9 + 4 = 10 + 3$$

1. Which of the following sentences are true, and which are false?

- (a) Four apples and three apples, altogether, is seven apples.
- (b) Six apples and three apples, altogether, is ten apples.
- (c) Six apples and one apple, altogether, is seven apples.
- (d) Five apples and two apples, altogether, is seven apples.

2. (a) How much is  $5 + 5$ ?



(b) How much is  $5 + 4$ ?

(c) How much is  $7 + 3$ ?



(d) How much is  $7 + 5$ ?



(e) How much is  $8 + 4$ ?

3. Nathi says  $5 \text{ cubes} + 4 \text{ cubes}$  is the same number of cubes as  $7 \text{ cubes} + 3 \text{ cubes}$ .

He writes  $5 + 4 = 7 + 3$ .

Is this true or false?

4. Mpho says  $5 + 5$  is the same number as  $7 + 3$ .

She writes  $5 + 5 = 7 + 3$ .

Is this true or false?



5. Decide which of the sentences below are false.  
If a sentence is false, make it true. Keep the left-hand side the same and change the right-hand side. Then write two more true number sentences with the same left-hand side.

Example:  $5 + 3 = 6 + 4$  is false.

But  $5 + 3 = 6 + 2$  is true.

$5 + 3 = 2 + 6$  and  $5 + 3 = 1 + 7$  are also true number sentences.

- |                         |                          |
|-------------------------|--------------------------|
| (a) $8 + 5 = 10 + 3$    | (b) $8 + 6 = 7 + 7$      |
| (c) $2 + 9 = 9 + 2$     | (d) $80 + 70 = 100 + 20$ |
| (e) $70 + 50 = 80 + 50$ | (f) $19 - 5 = 20 - 4$    |
| (g) $13 - 7 = 14 - 8$   | (h) $13 - 7 = 15 - 9$    |
| (i) $13 - 7 = 20 - 14$  | (j) $20 + 8 = 10 + 18$   |
| (k) $10 + 6 = 20 - 4$   | (l) $30 + 17 = 40 + 7$   |

The number sentence  $7 + 5 = 9 + 3$  can also be said in words, for example in any of the following ways:

*The sum of 7 and 5 is equal to the sum of 9 and 3.*

*If you add 5 to 7 you will get the same answer as when you add 3 to 9.*

*Seven plus five is equal to nine plus three.*

6. Write each of the following number sentences in words, in the three different ways shown above.

- |   |                             |
|---|-----------------------------|
| (a) $7 + 9 = 10 + 6$                        | (b) $13 + 7 = 15 + 5$       |
| (c) $19 - 5 = 20 - 6$                       | (d) $5 + 3 + 6 = 6 + 5 + 3$ |
| (e) $4 + 4 + 4 + 4 + 4 + 4 = 6 + 6 + 6 + 6$ |                             |

7. Write each number sentence in symbols.

- (a) The difference between 10 and 3 is equal to the sum of 5 and 2.
- (b) If you subtract 8 from 13 you will get the same answer as when you subtract 10 from 15.
- (c) Ten plus four is equal to eight plus six.

## 1.4 Solve and complete number sentences

The number sentence below is incomplete.

One of the numbers is missing.

$$4 + 6 = 2 + ?$$

An incomplete number sentence is also called an **open number sentence**.

The number 8 will make the above number sentence true:

$$4 + 6 = 2 + 8$$

The sentence  $4 + 6 = 2 + 8$  is called a **closed number sentence**.

Instead of a question mark, a little block  $\square$  or dots ... or the word *number* may be used to write an open number sentence:

$$4 + 6 = 2 + \dots \quad \text{or} \quad 4 + 6 = 2 + a \text{ number} \quad \text{or} \quad 4 + 6 = 2 + \square$$

1. In each case, find the number that will make the number sentence true.

(a)  $7 + 3 = 5 + \dots$

(b)  $70 + 30 = 40 + \square$

(c)  $700 + 300 = 800 + \dots$

(d)  $80 + 50 = 80 + 20 + \square$

(e)  $7 + 9 = 10 + \dots$

(f)  $75 + \dots = 100$

(g)  $\dots + 500 = 1\,000$

(h)  $120 + \dots = 150 + 50$

(i)  $\dots + 750 = 1\,000$

(j)  $487 + \dots = 500$

2. (a) Find two different numbers that will make this number sentence true:

$$8 + a \text{ number} = 10 + a \text{ different number}$$

(b) Find two other numbers that will also make the above number sentence true.

(c) Find another two numbers that will make the above number sentence true.

3. Complete the number sentences:

- |                     |                       |                         |
|---------------------|-----------------------|-------------------------|
| (a) $3 + 7 = \dots$ | (b) $30 + 70 = \dots$ | (c) $300 + 700 = \dots$ |
| (d) $3 + 6 = \dots$ | (e) $30 + 60 = \dots$ | (f) $300 + 600 = \dots$ |
| (g) $2 + 6 = \dots$ | (h) $20 + 60 = \dots$ | (i) $200 + 600 = \dots$ |
| (j) $4 + 6 = \dots$ | (k) $40 + 60 = \dots$ | (l) $400 + 600 = \dots$ |
| (m) $3 + 5 = \dots$ | (n) $30 + 50 = \dots$ | (o) $300 + 500 = \dots$ |
| (p) $3 + 4 = \dots$ | (q) $30 + 40 = \dots$ | (r) $300 + 400 = \dots$ |
| (s) $9 + 4 = \dots$ | (t) $90 + 40 = \dots$ | (u) $80 + 40 = \dots$   |
| (v) $8 + 5 = \dots$ | (w) $80 + 50 = \dots$ | (x) $70 + 40 = \dots$   |

4. Complete the number sentences:

- |                      |                        |                            |
|----------------------|------------------------|----------------------------|
| (a) $10 - 3 = \dots$ | (b) $100 - 30 = \dots$ | (c) $1\ 000 - 300 = \dots$ |
| (d) $9 - 3 = \dots$  | (e) $90 - 30 = \dots$  | (f) $900 - 30 = \dots$     |
| (g) $8 - 3 = \dots$  | (h) $80 - 30 = \dots$  | (i) $800 - 300 = \dots$    |
| (j) $7 - 3 = \dots$  | (k) $70 - 30 = \dots$  | (l) $700 - 300 = \dots$    |
| (m) $7 - 4 = \dots$  | (n) $70 - 40 = \dots$  | (o) $700 - 400 = \dots$    |
| (p) $8 - 4 = \dots$  | (q) $80 - 40 = \dots$  | (r) $800 - 400 = \dots$    |
| (s) $9 - 4 = \dots$  | (t) $90 - 40 = \dots$  | (u) $900 - 400 = \dots$    |
| (v) $10 - 4 = \dots$ | (w) $100 - 40 = \dots$ | (x) $1\ 000 - 400 = \dots$ |

5. Complete the number sentences:

- |                        |                        |                        |
|------------------------|------------------------|------------------------|
| (a) $9 + 5 = \dots$    | (b) $90 + 50 = \dots$  | (c) $190 + 50 = \dots$ |
| (d) $14 - 5 = \dots$   | (e) $140 - 50 = \dots$ | (f) $240 - 50 = \dots$ |
| (g) $13 - 5 = \dots$   | (h) $130 - 50 = \dots$ | (i) $230 - 50 = \dots$ |
| (j) $430 - 50 = \dots$ | (k) $430 - 60 = \dots$ | (l) $430 - 70 = \dots$ |
| (m) $8 + 7 = \dots$    | (n) $80 + 70 = \dots$  | (o) $60 + 70 = \dots$  |
| (p) $15 - 8 = \dots$   | (q) $150 - 80 = \dots$ | (r) $750 - 80 = \dots$ |
| (s) $13 - 8 = \dots$   | (t) $130 - 80 = \dots$ | (u) $430 - 80 = \dots$ |
| (v) $12 - 7 = \dots$   | (w) $120 - 70 = \dots$ | (x) $130 - 70 = \dots$ |

# 5

## NUMBER SENTENCES

### 5.1 Learn to use number sentences

Sometimes it is easy to see which calculations you have to do to find information, for example:

*Ben has R120 and he pays R50 for food.*

*How much money does he have left?*

Sometimes it is more difficult to see which calculations you must do, for example:

*Bettina spent R60 on food and then she had R80 left.*

*How much money did she have before she bought the food?*

In a case like this, it may help to write a number sentence to understand what you must do. We can write:

*The money Bettina had*  $- 60 = 80$

A number sentence like this will help you to see that in this case you can calculate  $80 + 60$  to find out how much money Bettina had.

$80 + 60 = 140$  so she had R140.

To check, you can put your answer into the number sentence:

$140 - 60 = 80$ , so R140 is the right answer.

1. Answer the questions that you find easy. Skip the other questions.

- (a) Gwede has 60 goats. He buys more goats and now he has 75 goats. How many goats did he buy?



- (b) Zweli has 75 goats. He buys another 60 goats. How many goats does he have now?
- (c) Lerato has 75 goats. This is 60 goats more than Willem has. How many goats does Willem have?
2. Find the missing number in each of these number sentences.
- (a)  $75 - \dots = 60$       (b)  $\dots + 60 = 75$       (c)  $60 + \dots = 75$   
(d)  $60 + 75 = \dots$       (e)  $75 - 60 = \dots$       (f)  $75 + 60 = \dots$   
(g)  $\dots - 60 = 75$       (h)  $\dots - 75 = 60$
3. Go back to the parts of question 1 that you skipped because you found them difficult. For each one, find a number sentence in question 2 that can help you. Try to answer all the parts of question 1 now.
4. Answer the questions that you find easy. Skip the other questions.
- (a) Ishmael has 75 goats and Simon has 60 goats. How many more goats does Ishmael have than Simon?
- (b) Pieter had 75 goats. He sold 60 goats. How many goats does he have left?
- (c) Lettie had 75 goats. Some goats were stolen and now she has only 60 goats left. How many goats were stolen?
- (d) Moses buys 60 goats and now he has 75 goats. How many goats did he have before he bought more goats?
- (e) Johan sold 60 goats and now he has 75 goats left. How many goats did he have before he sold some of his goats?
- (f) Mpho has 60 goats and her sister Nellie has 75 goats. How many goats do the two sisters have altogether?
5. Go back to the parts of question 4 that you skipped because you found them difficult. For each one, find a number sentence in question 2 that can help you. Try to answer all the parts of question 4 now.

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## 4.5 Problem solving

1. Researchers fitted a tracking collar around a leopard's neck to find out how big his hunting ground is. In the first week, the leopard covered a distance of 42 km and 499 m. In the second week, his distance was 59 km and 504 m, and in the third week, 82 km.
  - (a) How far did the leopard walk in these three weeks? Give your answer in km and m.
  - (b) What is the difference between the longest and shortest distance that the leopard walked?
  - (c) Round off all the distances to the nearest kilometre and add them together. What is the difference between this answer and the answer you gave in (a)?
  - (d) If the leopard walked 931 km altogether in 14 days, how many kilometres does he walk on average per day? Give your answer in km and m.
2. The yard animals are holding an endurance competition to see who can cover the biggest distance in one hour. Snail starts and covers 746 cm. Sparrow (he is not allowed to fly) has the shortest legs and moves five times further than Snail. Hen does double the distance of Sparrow and Scottish Terrier travels 36 times farther than Snail.
  - (a) Write down the distance that each of the animals travelled. Write your answer in cm, and in m and cm.
  - (b) Arrange the distances in ascending order (from shortest to longest).
  - (c) Write the distance that Snail moved in mm.
  - (d) How far will Snail go in three weeks if he moves one hour a day?
  - (e) What distance did all the animals together travel in one hour? Answer in cm, and in m and cm.



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- (f) Round off the distance each animal travelled in the one hour to the nearest 5 cm.
- (g) How far must Sparrow go if he wants to double Snail's distance?
3. For each 1 500 m that Mrs Cat runs, Mr Dog runs 2 000 m.
- (a) How far does Mr Dog run if Mrs Cat runs 4 500 m?
- (b) How far does Mrs Cat run if Mr Dog runs 10 km?
4. Adam wants to put up an electric fence consisting of five wires around his yard. He needs 5 lengths of 120 m wire. He decides to round off the length of the wire to the nearest 100 to make it easier to work out how much wire he will need.
- (a) How many metres of wire does he need if he works it out like this?
- (b) How many metres too many or too few is this?
5. Nandi plants vegetables in her vegetable patch. Each row is 3 m long. There are several rows.
- (a) Draw two rows each 12 cm long and divide each row into 3 equal parts. Each of the parts represents 1 m.
- (b) In the first row, Nandi plants her tomatoes 50 cm apart. Make marks on your drawing to show where the tomato plants will go. How many can she plant in this row?
- (c) In the next row, she plants mealies 30 cm apart. Make marks on your drawing to show where the mealie seeds will go. How many mealie seeds will she plant in this row?
- (d) She plants more rows of tomatoes, also 50 cm apart. If she has 28 tomato plants, how many rows of tomatoes can she plant?
- (e) For every 7 tomato plants that she plants, she plants 11 mealie seeds. How many mealie seeds will she plant if she plants 56 tomato plants?
- (f) How many tomato plants does she need if she plants 110 mealie seeds?

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(g) In one row she plants only 3 tomato plants. Which fraction/part of the 3 m long row is still open?

(h) What fraction of the row did she plant if she planted 5 tomato plants?

6. Fill in the sign of operation (+ or -) and the missing length to get the given length.

Example:  $26 \text{ m} \oplus 24 \text{ m} = 50 \text{ m}$

(a)  $37 \text{ mm} \square \text{ \_\_\_\_\_\_} = 70 \text{ mm}$       (b)  $87 \text{ cm} \square \text{ \_\_\_\_\_\_} = 1 \text{ m}$

(c)  $155 \text{ m} \square \text{ \_\_\_\_\_\_} = 120 \text{ m}$       (d)  $880 \text{ mm} \square \text{ \_\_\_\_\_\_} = 90 \text{ cm}$

(e)  $7\,500 \text{ m} \square \text{ \_\_\_\_\_\_} = 8 \text{ km}$       (f)  $6\,402 \text{ m} \square \text{ \_\_\_\_\_\_} = 10 \text{ km}$

(g)  $11\frac{1}{2} \text{ km} \square \text{ \_\_\_\_\_\_} = 9\,000 \text{ m}$       (h)  $1\,554 \text{ cm} \square \text{ \_\_\_\_\_\_} = 16 \text{ m}$



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**UNIT**      **WHOLE NUMBERS:**  
**5**            **MULTIPLICATION**

### 5.1 Refresh your multiplication memory

1. For which of these do you know the answer? Copy the questions that you *do not* quickly know the answers to into your book, so that you can work on them later.

$30 \times 8$	$30 \times 10$	$30 \times 2$	$30 \times 5$	
$70 \times 7$	$70 \times 8$	$70 \times 10$	$70 \times 2$	
$80 \times 6$	$80 \times 7$	$80 \times 8$	$80 \times 10$	
$50 \times 4$	$50 \times 6$	$50 \times 7$	$50 \times 8$	
$20 \times 9$	$20 \times 4$	$20 \times 6$	$20 \times 7$	
$90 \times 3$	$90 \times 9$	$90 \times 4$	$90 \times 6$	
$60 \times 5$	$60 \times 3$	$60 \times 9$	$60 \times 4$	
$40 \times 2$	$40 \times 5$	$40 \times 3$	$40 \times 9$	
$10 \times 10$	$10 \times 2$	$10 \times 5$	$10 \times 3$	
$30 \times 3$	$30 \times 9$	$30 \times 4$	$30 \times 6$	$30 \times 7$
$70 \times 5$	$70 \times 3$	$70 \times 9$	$70 \times 4$	$70 \times 6$
$80 \times 2$	$80 \times 5$	$80 \times 3$	$80 \times 9$	$80 \times 4$
$50 \times 10$	$50 \times 2$	$50 \times 5$	$50 \times 3$	$50 \times 9$
$20 \times 8$	$20 \times 10$	$20 \times 2$	$20 \times 5$	$20 \times 3$
$90 \times 7$	$90 \times 8$	$90 \times 10$	$90 \times 2$	$90 \times 5$
$60 \times 6$	$60 \times 7$	$60 \times 8$	$60 \times 10$	$60 \times 2$
$40 \times 4$	$40 \times 6$	$40 \times 7$	$40 \times 8$	$40 \times 10$
$10 \times 9$	$10 \times 4$	$10 \times 6$	$10 \times 7$	$10 \times 8$

---

Jemimah does not immediately know how much  $60 \times 7$  is.

She asks herself: “Is there some other multiplication fact for 60 that I do know?”

She can only remember that  $2 \times 60 = 120$ .

Now she thinks: “If  $2 \times 60 = 120$ , then  $4 \times 60$  is 120 doubled... and that is 240.

And  $6 \times 60 = 4 \times 60 + 2 \times 60 = 240 + 120 = 360$ .

So  $7 \times 60$  is one 60 more than 360, and that is 420.”

2. (a) Choose any of the items you could not immediately answer when you did question 1. Try to work it out using any method you prefer.  
(b) Do the same for another item you could not answer. Continue in this way until you have answered all those items.
3. Copy the table below, and fill in the answers that you did *not* know when you did question 1.

$\times$	2	4	8	3	6	5	10	9	7
10									
50									
90									
80									
40									
20									
30									
60									
70									

---

## 5.3 Multiply 3-digit numbers by 1-digit numbers

$347 \times 8$  can be calculated as follows:

$$347 = 300 + 40 + 7$$

$$\begin{aligned}\text{So, } 347 \times 8 &= 300 \times 8 + 40 \times 8 + 7 \times 8 \\ &= 2\,400 + 320 + 56 \\ &= 2\,000 + 400 + 300 + 20 + 50 + 6 \\ &= 2\,776\end{aligned}$$

- Calculate each of the following.
  - $563 \times 7$
  - $6 \times 378$
  - $362 \times 9$
  - $8 \times 623$
  - $6 \times 407$
  - $785 \times 6$
  - $9 \times 284$
  - $7 \times 493$
  - $587 \times 8$
  - $698 \times 4$
  - $478 \times 7$
  - $908 \times 8$
- One hotel has 238 rooms. How many rooms are there in 7 such hotels?
- At a large wedding reception, 8 guests sit at one table. How many guests are at the wedding reception if 156 tables are fully occupied?
- During a cross-country marathon there should be at least nine water sachets for each athlete. How many sachets of water are needed if there are 577 runners?
- Jane needs to feed eight two-week-old baby goats 375 ml of milk each, four times a day. How much milk does she need every day? Give your answer in litres.
- The price of four soccer balls is R556. How much do nine balls cost?
- A bag of onions has a mass of 875 g. Calculate the total mass of eight bags of onions. Give your answer in kilograms.

---

## 5.4 Multiply 3-digit numbers by 2-digit numbers

$347 \times 84$  can be calculated as follows:

$$347 = 300 + 40 + 7$$

So,  $347 \times 84 = 300 \times 84 + 40 \times 84 + 7 \times 84$

$$= 300 \times 80 + 40 \times 80 + 7 \times 80 + 300 \times 4 + 40 \times 4 + 7 \times 4$$

Each of the three parts have to be calculated separately.

1. Calculate each of the parts of  $347 \times 84$  shown above, and then find out how much  $347 \times 84$  is.
2. Calculate  $347 \times 84$  in a different way, by first breaking down 84 into 80 and 4.
3. Calculate each of the following.
  - (a)  $384 \times 76$
  - (b)  $64 \times 328$
  - (c)  $374 \times 42$
  - (d)  $419 \times 56$
  - (e)  $83 \times 387$
  - (f)  $276 \times 77$
  - (g)  $658 \times 69$
  - (h)  $709 \times 26$
  - (i)  $52 \times 354$
  - (j)  $542 \times 63$
  - (k)  $288 \times 58$
  - (l)  $46 \times 496$
4. See if you can use your answer for question 3(i) to calculate the mass of 177 bags of river sand if the mass of one bag is 52 kg.
5. The entrance fee for a concert is R32 for school children and R48 for adults. Tickets are sold at the door. How much money is taken at the door if 215 children and 467 adults attend the concert?
6. Twenty-four schools each receive a large box with 254 light bulbs. How many light bulbs is this in total?
7.
  - (a) On a strawberry farm, there are 546 strawberry plants in each bed. How many plants are there altogether in 34 strawberry beds?
  - (b) Strawberry jam is also produced on the farm and packed in boxes of 48 jars each. How many jars are there in 465 boxes?

---

**UNIT**      **WHOLE NUMBERS:**  
**6**          **DIVISION**

## 6.1 What is division?

To answer any of the following questions, you have to do division.

- A. How many pieces of 34 cm each can you cut from 7 894 cm of rope on a roll?
  - B. How much will each person get if R7 854 is shared equally between 34 people?
  - C. A house is 34 times as big as its drawing on the building plan. In the actual house, one of the walls is 7 888 mm long. How long is the line that shows this wall on the plan?
  - D. A wall is 34 mm long on the building plan. The actual wall in the house is 7 888 mm long. How many times bigger than the plan is the actual house?
  - E. For what number will the sentence  $34 \times \dots = 7\,888$  be true?
1. Read question A again. Think about the situation. Then answer these questions:
    - (a) Do you think you can cut 1 000 pieces of 34 cm each from a roll with 7 894 cm of rope?
    - (b) Can you cut 100 pieces of 34 cm each from the roll?
  2. Read question B again, think about it and then answer these questions:
    - (a) Do you think each person can get at least R200?
    - (b) Do you think each person can get R300?
  3. Read question C again. Then answer this question:

If a wall is shown by a 200 mm line on the building plan, how long is the wall in the actual house?

- 
4. Read question D again. Then answer this question:  
If the house is 200 times as big as the drawing on the plan, how long is the wall shown by the 34 mm line in the actual house?
5. Read question E again and then answer these questions:
- (a) Can the number that will make the sentence true be bigger than 300?
  - (b) How much is  $34 \times 250$ ?
  - (c) How much is  $34 \times 230$ ?
6. What number will make the sentence  $57 \times \dots = 4\,731$  true?

You will study a method of division in the next section.

To do division, you have to be good at **forming multiples** of the numbers that you divide by, for example the number 64 in  $3\,829 \div 64$ .

The number by which you divide another number is called the **divisor**.

To form a multiple of a number, you multiply the number by another number. For example:

$10 \times 64$  is 640, so 640 is a multiple of 64.

$100 \times 64$  is 6 400, so 6 400 is a multiple of 64.

**Doubling** may be used in some cases to find multiples.

For example, if you know that  $40 \times 53 = 2\,120$ , you can double 2 120 to find  $80 \times 53$ .

**Halving** may also be useful to find multiples.

For example, if you know that  $100 \times 68 = 6\,800$ , you can halve 6 800 to find  $50 \times 68$ .

7. To do division you need to be able to answer questions like these. Note that you can use your answers for (a) to easily find the answers for (b).
- (a) How much are  $100 \times 73$  and  $53 \times 1\,000$ ?
  - (b) How much are  $50 \times 73$  and  $53 \times 500$ ?
  - (c) How much are  $25 \times 73$  and  $53 \times 250$ ?
  - (d) How much are  $125 \times 73$  and  $53 \times 750$ ?

8. Practise forming multiples. Also keep in mind what you have just read about doubling and halving! You will find both techniques very useful.

Form nine multiples of each number below, by multiplying it with 10, 100, 50, 30, 40, 60, 70, 80 and 90.

- |        |        |
|--------|--------|
| (a) 37 | (b) 76 |
| (c) 98 | (d) 43 |
| (e) 38 | (f) 55 |

## 6.2 Dividing by building up

$6\ 150 \div 73$  can be calculated like this:

<b>Thinking</b>	<b>Writing</b>	<b>Thinking</b>
		$100 \times 73 = 7\ 300$
Half of that:	$50 \times 73 = 3\ 650$	<b>3 650</b> is more than 1 000 away from 6 150.
	$10 \times 73 = 730$	$60 \times 73 = 3\ 650 + 730 = \mathbf{4\ 380}$
	$10 \times 73 = 730$	So there is room for 730 more.
	$10 \times 73 = 730$	$70 \times 73 = 4\ 380 + 730 = \mathbf{5\ 110}$
	$10 \times 73 = 730$	There is room for 730 more.
	$3 \times 73 = 219$	$80 \times 73 = 5\ 110 + 730 = \mathbf{5\ 840}$
	$1 \times 73 = 73$	Still 160 + 150 to go!
	$84 \times 73 = 6\ 132$	$83 \times 73 = 5\ 840 + 219 = \mathbf{6\ 059}$
Altogether:		So I can add another 73.
		$84 \times 73 = 6\ 059 + 73 = \mathbf{6\ 132}$

$6\ 150 - 6\ 132 = 18$ , so  $6\ 150 \div 73 = 84$  remainder 18.

In the above method, multiples of 73 are added up until the distance from 6 150 is less than 73.

The work can be set out more briefly by leaving out the descriptions of the thinking:

$50 \times 73 = 3\,650$	$3\,650$
$10 \times 73 = 730$	$4\,380$
$10 \times 73 = 730$	$5\,110$
$10 \times 73 = 730$	$5\,840$
$3 \times 73 = 219$	$6\,059$
$\underline{1} \times 73 = \underline{73}$	$6\,132$
$84 \times 73 = 6\,132$	

$6\,150 - 6\,132 = 18$ , so  $6\,150 \div 73 = 84$  remainder 18.

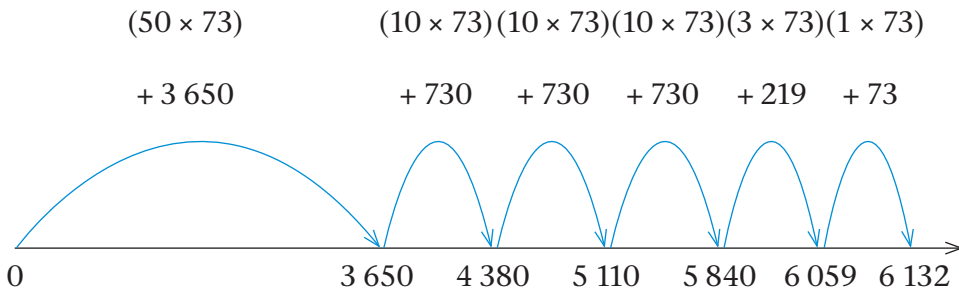
The work to calculate  $6\,150 \div 73$  can also be summarised as follows:

$$3\,650 + 730 \rightarrow 4\,380 + 730 \rightarrow 5\,110 + 730 \rightarrow 5\,840 + 219 \rightarrow 6\,059 + 73 \rightarrow 6\,132$$

or

$$(50 \times 73) + (10 \times 73) + (10 \times 73) + (10 \times 73) + (3 \times 73) + (1 \times 73) = 6\,132$$

We may also think of the division work as movements on a number line. This is shown here for  $6\,150 \div 73$ .



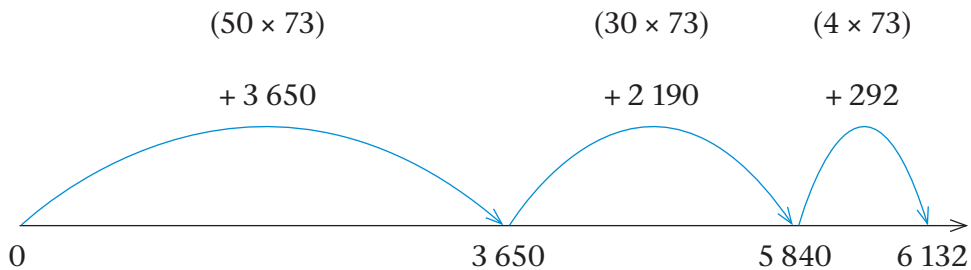
$6\,150 - 6\,132 = 18$ , so  $6\,150 \div 73 = 84$  remainder 18.



If you can estimate well, you can do it in fewer steps. For example:

$$\begin{array}{r}
 50 \times 73 = 3\,650 \\
 30 \times 73 = 2\,190 \\
 \underline{4 \times 73 = 292} \\
 84 \times 73 = 6\,132
 \end{array}
 \qquad
 \begin{array}{r}
 3\,650 \\
 5\,840 \\
 6\,132
 \end{array}$$

$6\,150 - 6\,132 = 18$ , so  $6\,150 \div 73 = 84$  remainder 18.



$6\,150 - 6\,132 = 18$ , so  $6\,150 \div 73 = 84$  remainder 18.

You can check the answer by multiplying, and you may use a calculator to do so:

$$84 \times 73 = 6\,132$$

Remember to add the remainder to this:

$$6\,132 + 18 = 6\,150$$

Work out the answers to these questions.

1. (a) Calculate  $950 \div 64$ . Use as many steps as you need.  
 (b) Investigate how you could have done it using fewer steps.  
 (c) Multiply to check your answer.
  
2. (a) Calculate  $5\,700 \div 64$ . Use as many steps as you need.  
 (b) Investigate how you could have done it using fewer steps.  
 (c) Multiply to check your answer.

- 
3. (a) Calculate  $3\,450 \div 93$ . Use as many steps as you need.  
 (b) Check your answer. Show how you do it.
  4. A computer factory builds 2 784 computers every day. If the factory operates 24 hours a day, how many computers are built in one hour?
  5. Peppy wants to buy a skateboard that costs R1 875. He washes cars in the neighbourhood and earns R28 for every car he washes. How many cars must he wash to earn enough money so that he can buy the skateboard?
  6. A supermarket donates 4 698 boxes of wax crayons to nursery schools. The boxes of wax crayons are divided equally between 27 nursery schools. How many boxes of wax crayons does each nursery school get?

Some people find it useful to subtract every now and again when doing division. They do this in order to know more accurately what the remainder is.

For example, while calculating  $6\,150 \div 73$ , first 3 650 and later 5 840 are subtracted from 6 150. The blue frames below show you where this is done:

			<b>Remainder</b>
$50 \times 73 = 3\,650$	$3\,650$		$6\,150 - 3\,650 = 2\,500$
$20 \times 73 = 1\,460$	$5\,110$		
$10 \times 73 = 730$	$5\,840$		$6\,150 - 5\,840 = 310$
$\underline{4 \times 73 = 292}$	$6\,132$		$6\,150 - 6\,132 = 18$
$84 \times 73 = 6\,132$			

$6\,150 - 6\,132 = 18$ , so  $6\,150 \div 73 = 84$  remainder 18.

7. Use the above technique to calculate the following.
  - (a)  $5\,068 \div 36$
  - (b)  $9\,274 \div 26$

---

## 6.3 Practice

- Mr Nkosi can transport 26 bundles of wood per load with his bakkie. How many loads will he need to transport 3 300 bundles of wood?
- 8 000 roof tiles have to be made up in 32 equal stacks. How many tiles will there be in a stack?
  - There are 248 bricks on one pallet. How many pallets do you have to buy if you need 8 000 bricks?
- Captain Hook and his 35 pirates discovered a chest with gold coins. They shared the 4 752 coins equally amongst them. How many coins did each of the 36 men get?
- The school's drama club is putting on a play. Each club member has to sell 26 tickets. The members have to sell a total of 1 404 tickets. How many members does the drama club have?
- A number of soccer players practised kicking goals. In total, 1 470 kicks were made. Each player kicked 35 times. How many players took part in this practice session?
- Calculate.
  - $1\ 176 \div 28$
  - $1\ 176 \div 42$
  - $3\ 060 \div 36$
  - $3\ 072 \div 32$

## 6.4 The long division method

You have now often done division by *adding up* multiples of the divisor.

Below is an example of how to use the method when we have to calculate  $8\ 649 \div 34$ . The divisor is 34.

$200 \times 34 = 6\ 800$	6 800	
$50 \times 34 = 1\ 700$	8 500	
$\underline{4} \times 34 = \underline{136}$	8 636	13
$254 \times 34 = 8\ 636$		

So  $8\ 649 \div 34 = 254$  remainder 13.

Here is another way of doing division. Instead of adding up the multiples of the divisor, we can *subtract* them from the number that is divided into parts.

This method is shown below, again for  $8\,649 \div 34$ .

	8 649	<b>Remainder</b>	<b>Explanation</b>
$200 \times 34 =$	6 800	1 849	$8\,649 - 6\,800 = 1\,849$
$50 \times 34 =$	1 700	149	$1\,849 - 1\,700 = 149$
$\underline{4 \times 34 =}$	<u>136</u>	13	$149 - 136 = 13$
$254 \times 34 =$	8 636		

So  $8\,649 \div 34 = 254$  remainder 13.

Here is a shorter way of recording this:

	<b>Explanation</b>	<b>Explanation</b>
8 649		
<u>- 6 800</u>	$200 \times 34$	
1 849		$8\,649 - 6\,800 = 1\,849$
<u>- 1 700</u>	$50 \times 34$	
149		$1\,849 - 1\,700 = 149$
<u>- 136</u>	<u>4</u> $\times 34$	
13	254	$200 + 50 + 4 = 254$

So  $8\,649 \div 34 = 254$  remainder 13.

- Use the above method to do the following calculations. You may leave out the explanation column that shows the subtractions.
  - $7\,814 \div 42$
  - $9\,638 \div 28$
- Now do the calculations in question 1 by adding up multiples of the divisor, as you did previously.
- Use any method to calculate the following.
  - $2\,444 \div 47$
  - $4\,205 \div 29$
  - $1\,856 \div 32$
  - $7\,922 \div 34$

---

## A piece of history

In the past, people used the following way to record their work when doing division. The explanations were normally left out.

	<b>Explanation</b>
$\begin{array}{r} 254 \\ 34 \overline{) 8\,649} \\ \underline{6\,800} \\ 1\,849 \\ \underline{1\,700} \\ 149 \\ \underline{136} \\ 13 \end{array}$	$\begin{array}{l} 200 \times 34 \\ \\ 50 \times 34 \\ \\ 4 \times 34 \\ \hline 254 \end{array}$

So  $8\,649 \div 34 = 254$  remainder 13.

The work was done in stages as shown below.

The zeros were not written, to keep the space for the other figures.

<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>
$\begin{array}{r} 200 \\ 34 \overline{) 8\,649} \\ \underline{6\,800} \\ 1\,849 \end{array}$	$\begin{array}{r} 250 \\ 34 \overline{) 8\,649} \\ \underline{6\,800} \\ 1\,849 \\ \underline{1\,700} \\ 149 \end{array}$	$\begin{array}{r} 254 \text{ remainder } 13 \\ 34 \overline{) 8\,649} \\ \underline{6\,800} \\ 1\,849 \\ \underline{1\,700} \\ 149 \\ \underline{136} \\ 13 \end{array}$

If you wish, you may also do and record your division work like this.

---

## 6.5 Practice

- 8 028 books are wrapped in bundles of 36 for distribution to schools. How many bundles of 36 books will there be?
  - A school has R9 200 available to buy books at R88 each. How many books can the school buy?
- A water tank has a capacity of 150 ℓ. The capacity of a small measuring cup is 100 ml. How many full measuring cups will fill the tank (provided that no water is spilled)?
- To make a chocolate drink, 10 ml of chocolate powder has to be used for every 200 ml of milk used.
  - How much milk should be used with 5 ml chocolate powder?
  - How much chocolate powder do you need for  $\frac{1}{2}$  ℓ of milk?
  - If 3 ℓ of chocolate drink is shared equally among 8 children, how much does each child get? Answer in millilitres.
- 1 728 small *cubic* building blocks are stacked to form a bigger *cube*. If the height of the bigger cube is 12 blocks, how many blocks are needed for the length and how many are needed for the width?
- A total of 1 400 square tiles are laid in the shape of a square and a rectangle. The square consists of 144 tiles.
  - How many rows of tiles are there in the square, and how many tiles are there in one row?
  - How many tiles are there in the rectangle?
  - The short side of the rectangle consists of 8 tiles. How many rows of 8 tiles each are there?
- A special box of sweets has 1 080 sweets! The sweets are packed in neat rows and in more than one layer.
  - In each layer, there are 18 sweets in a row. If there are 216 sweets in one layer, how many rows are there in one layer?
  - How many layers of sweets are there in the box?

### 3.1 Revision

1. Approximately 1 million people are expected to attend a Youth Day celebration on the 16th of June.
  - (a) It is expected that about 100 000 of the people will be 25 years old or older. About how many people are expected to be younger than 25 years?
  - (b) In the previous year about 740 000 people attended the celebration. How many more are expected this year?
2. Write each of the following as a single number. Write the number symbols, for example 605 080.
  - (a) 30 thousand + 7 hundred
  - (b) 300 thousand + 7 hundred
  - (c) 3 million + 7 hundred
  - (d) 300 thousand + 70
  - (e) 4 ten thousands + 6 hundreds + 5 units
  - (f) 4 hundred thousands + 6 thousands + 5 tens
  - (g) 4 hundred thousands + 5 ten thousands + 5 tens

204 870 can be written in words:

two hundred and four thousand eight hundred and seventy

300 000 + 400 000 can be written in symbols *and* words:

300 thousand + 400 thousand

3. Write each of the following in symbols *and* words, and then calculate.
  - (a) 30 000 + 70 000
  - (b) 300 000 + 7 000
  - (c) 180 000 + 400 000
  - (d) 70 000 + 80 000
  - (e) 230 000 – 80 000
  - (f) 630 000 – 80 000

- 
4. In each case, first estimate the answer to the nearest ten thousand. Then calculate the answer using your calculator. Also calculate how far your estimate is from the actual answer.
- (a)  $273\,456 + 354\,567$                       (b)  $534\,512 - 255\,678$   
(c)  $873\,456 + 75\,456$                       (d)  $734\,560 + 54\,567$   
(e)  $734\,560 + 545\,670$                       (f)  $734\,560 + 154\,567$   
(g)  $435\,456 + 213\,257$                       (h)  $734\,560 - 154\,567$   
(i)  $362\,527 + 282\,426 - 363\,229$   
(j)  $267\,566 + 19\,123 - 74\,234 + 67\,762 - 38\,658 + 57\,235 - 13\,273$
5. Calculate each of the following without using a calculator. Then use your calculator to check the answer by doing the calculations in a different order.
- (a)  $145\,132 + 38\,786 + 433\,286$   
(b)  $(645\,132 - 318\,786) + 533\,674$   
(c)  $354\,317 + 328\,786 - 433\,286$   
(d)  $615\,432 - 238\,786 - 163\,286$   
(e)  $115\,432 + 376\,894 + 432\,861$   
(f)  $315\,432 + 176\,894 - 132\,861$
6. Do questions (a) and (b) without using a calculator, but use a calculator to check your answer for each question as you go along.
- (a) There is 50 m of thin copper cable on a roll.  
How much copper cable will be left on the roll, after *all* the following lengths of cable have been cut off?  
380 cm; 1 324 cm; 345 cm
- (b) Another piece of cable is cut off and now 21,45 m of cable is left. How long is the piece of cable that was cut off?
- (c) How much copper cable will be left on the roll, after the following lengths have all been cut off?  
8 234 mm; 236 cm; 38,4 cm; 289 mm



---

## 3.2 Addition and subtraction in financial contexts

The income and expenses during 2013 of some departments of a large municipality are given in rands in the table below.

	Income (R)	Expenses (R)
Health	23 765 488	58 459 303
Traffic	1 386 457	1 856 487
Electricity	336 349 543	152 357 388
Taxes	9 273 243	1 237 378
Buildings	874 598	31 276 387
Water	134 567 343	183 453 499
Sport	276 388	9 458 256

- Which department had the lowest (smallest) income and which department had the highest (biggest) income?
  - Which department had the lowest expenses and which department had the highest expenses?
- In which departments was the income higher than the expenses?
  - In each case state how much higher the income was than the expenses.
  - Add up the amounts that you calculated in question (b).
- In which departments was the income lower than the expenses?
  - In each case state how much lower the income was than the expenses.
  - Add up the amounts that you calculated in question (b).
- Calculate the total income of the seven departments.
  - Calculate the total expenses of the seven departments.
  - Calculate the difference between the total income and the total expenses.
- Use your answers for questions 2(c) and 3(c) to check your answer for question 4(c).

---

The monthly income and expenses of a small business, over a period of 12 months, are given in rands in the table below.

	Jan	Feb	March	April	May
<b>Income (R)</b>	196 348	187 326	165 388	199 203	157 772
<b>Expenses (R)</b>	162 342	167 438	166 329	173 298	164 373

June	July	August	Sept	Oct	Nov	Dec
167 326	228 548	171 223	163 265	193 472	152 398	225 251
167 295	176 922	165 237	166 487	174 398	166 398	186 326

Questions 6, 7 and 8 below are about this small business. You may use your calculator where you believe it will be helpful.

6. As you can see in the table, both the income and the expenses changed from month to month.
  - (a) Which changed the most from month to month, the income or the expenses?
  - (b) What is the difference between the highest monthly income and the lowest monthly income?
  - (c) What is the difference between the highest monthly expenses and the lowest monthly expenses?

From January to February, the expenses increased by R5 096 from R162 342 to R167 438. From January to February, the income decreased by R9 022, from R196 348 to R187 326.

7.
  - (a) From which month to which month did the biggest increase in income occur, and what was this increase?
  - (b) From which month to which month did the biggest decrease in income occur, and what was this decrease?
8. At the beginning of January the small business had R234 765 in cash. During the year, all the income was added to this amount, and all the expenses were paid out of this amount. How much cash did the business have at the end of December?

---

### 3.3 Add and subtract measurements

The residents of a certain village get their household water from a reservoir on a hilltop. Water is pumped into the reservoir from a large dam in a nearby river.



The following quantities are measured at 12:00 each day:

- the amount of water pumped into the reservoir over the last 24 hours (the “inflow”)
- the amount of water used by the residents over the last 24 hours (the “consumption”)
- the volume of water in the reservoir.

Some of the measurements over a number of days are given in the table below. All the measurements are in kilolitres.

	Day 1	Day 2	Day 3	Day 4
<b>Inflow</b>	98 743	107 589	106 222	97 342
<b>Consumption</b>	128 236	132 675	123 763	108 228
<b>Volume in reservoir</b>	956 378	931 292		

- 
1. What should the measurements for the volume of water in the reservoir on Days 3 and 4 be, if there are no leakages from the reservoir?

The records for the next six days are not complete.

Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
110 237	131 809	(a)	96 284	105 638	110 547
113 678	102 563	121 073	(b)	(c)	128 345
899 424	928 670	931 975	901 512	(d)	857 428

2. What should the missing measurements (a), (b), (c) and (d) be?
3. What is the total amount of water used by the residents over the period of 10 days?
4. (a) On which of the ten days was the consumption higher than the inflow?  
(b) Does the volume of water in the reservoir increase or decrease when the consumption is higher than the inflow?

The records for the next six days are given in the table below.

Day 11	Day 12	Day 13	Day 14	Day 15	Day 16
123 452	128 547	131 267	128 769	127 226	132 387
112 765	115 238	112 347	116 385	118 376	114 285
868 115	881 424	900 137	911 532	916 367	909 536

5. The manager of the water system suspects that water has started to leak from the reservoir.

Do you see any evidence of leakage in the records for Days 11 to 16?

Give reasons for your answer and write a detailed report on the matter.

In your report, indicate how much water is possibly leaking, and whether the leakage gets worse or remains stable.



3's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 3 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 3, but not touching).

2	4	7	4	8	15	4	1	2	3	4	4	1	8
1	6	18	9	1	8	15	2	21	7	2	27	1	8
15	2	7	8	21	8	5	4	8	7	12	5	27	4
2	5	21	7	4	15	8	9	4	21	8	2	2	18
15	9	7	4	2	21	1	21	2	6	7	9	7	5
5	4	5	2	1	27	4	8	2	6	4	5	18	8
2	2	12	8	21	7	1	6	7	1	18	2	8	2
2	12	4	2	15	8	8	5	2	15	5	2	24	1
7	5	2	8	3	5	6	21	9	5	1	21	1	12
2	8	15	2	5	21	5	4	2	1	4	7	2	2
4	12	4	27	1	1	8	21	7	5	9	5	9	7
5	5	21	2	7	5	7	15	8	7	1	27	1	12



5	4	7	8	2	2	21	8	2	7	9	2	1	2
7	7	12	1	1	8	7	6	7	18	4	15	5	4
24	12	8	8	6	2	8	7	15	5	18	1	18	4
7	1	4	12	1	24	2	2	2	21	1	8	21	5
3	8	6	5	4	5	3	5	4	9	7	8	5	15
7	7	27	5	15	2	4	15	1	21	6	8	4	5
8	18	2	7	8	18	7	18	1	2	1	8	21	5
8	8	12	2	15	4	4	24	2	5	7	6	2	6
4	15	8	1	1	7	1	1	3	5	5	6	2	5
5	1	27	3	9	8	1	9	4	2	7	12	2	4
12	1	2	7	7	18	8	1	9	2	12	8	7	7
7	9	2	1	6	5	4	8	2	18	2	4	7	8



3's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 3 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 3, but not touching).

2	4	7	4	8	15	4	1	2	3	4	4	1	8
1	6	18	9	1	8	15	2	21	7	2	27	1	8
15	2	7	8	21	8	5	4	8	7	12	5	27	4
2	5	21	7	4	15	8	9	4	21	8	2	2	18
15	9	7	4	2	21	1	21	2	6	7	9	7	5
5	4	5	2	1	27	4	8	2	6	4	5	18	8
2	2	12	8	21	7	1	6	7	1	18	2	8	2
2	12	4	2	15	8	8	5	2	15	5	2	24	1
7	5	2	8	3	5	6	21	9	5	1	21	1	12
2	8	15	2	5	21	5	4	2	1	4	7	2	2
4	12	4	27	1	1	8	21	7	5	9	5	9	7
5	5	21	2	7	5	7	15	8	7	1	27	1	12



5	4	7	8	2	2	21	8	2	7	9	2	1	2
7	7	12	1	1	8	7	6	7	18	4	15	5	4
24	12	8	8	6	2	8	7	15	5	18	1	18	4
7	1	4	12	1	24	2	2	2	21	1	8	21	5
3	8	6	5	4	5	3	5	4	9	7	8	5	15
7	7	27	5	15	2	4	15	1	21	6	8	4	5
8	18	2	7	8	18	7	18	1	2	1	8	21	5
8	8	12	2	15	4	4	24	2	5	7	6	2	6
4	15	8	1	1	7	1	1	3	5	5	6	2	5
5	1	27	3	9	8	1	9	4	2	7	12	2	4
12	1	2	7	7	18	8	1	9	2	12	8	7	7
7	9	2	1	6	5	4	8	2	18	2	4	7	8

Not a multiple

Distractor

Correct Path



### 4's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 4 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 4, but not touching).

9	5	14	6	11	20	2	13	1	12	11	1	9	6
9	36	32	24	15	9	8	2	8	9	3	20	7	1
12	15	5	2	28	5	15	15	15	3	32	11	4	10
7	3	36	9	15	32	15	36	6	12	5	11	9	4
36	36	14	14	9	20	6	4	14	20	14	4	2	5
10	2	3	9	9	12	5	2	15	16	3	6	16	10
3	7	24	6	8	7	5	36	6	13	8	3	5	1
2	28	15	7	28	15	1	2	14	28	9	15	28	5
5	6	14	13	20	1	28	32	16	9	14	32	2	12
6	13	4	3	7	4	3	1	15	1	14	6	11	10
3	20	11	32	13	7	9	4	2	13	4	13	12	14
1	3	28	7	10	1	9	16	2	3	2	24	15	4



10	10	10	3	2	1	16	7	1	7	24	15	6	15
5	6	32	5	14	14	6	20	13	16	10	36	5	11
24	20	2	3	28	3	10	9	12	5	16	15	20	2
1	13	5	12	5	8	1	9	11	8	15	11	24	15
16	6	4	11	14	14	16	11	15	36	3	1	1	32
15	6	24	2	12	9	2	36	2	28	8	10	14	1
13	32	14	7	5	16	11	4	6	1	9	15	28	10
10	14	16	7	8	9	6	20	2	1	5	32	9	4
14	24	3	11	7	14	5	7	12	7	15	12	2	14
1	9	8	4	16	10	1	4	1	10	9	8	15	5
16	15	13	14	2	12	10	15	8	5	4	15	9	15
1	8	9	14	32	14	3	11	9	24	3	1	13	6



### 4's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 4 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 4, but not touching).

9	5	14	6	11	20	2	13	1	12	11	1	9	6
9	36	32	24	15	9	8	2	8	9	3	20	7	1
12	15	5	2	28	5	15	15	15	3	32	11	4	10
7	3	36	9	15	32	15	36	6	12	5	11	9	4
36	36	14	14	9	20	6	4	14	20	14	4	2	5
10	2	3	9	9	12	5	2	15	16	3	6	16	10
3	7	24	6	8	7	5	36	6	13	8	3	5	1
2	28	15	7	28	15	1	2	14	28	9	15	28	5
5	6	14	13	20	1	28	32	16	9	14	32	2	12
6	13	4	3	7	4	3	1	15	1	14	6	11	10
3	20	11	32	13	7	9	4	2	13	4	13	12	14
1	3	28	7	10	1	9	16	2	3	2	24	15	4



10	10	10	3	2	1	16	7	1	7	24	15	6	15
5	6	32	5	14	14	6	20	13	16	10	36	5	11
24	20	2	3	28	3	10	9	12	5	16	15	20	2
1	13	5	12	5	8	1	9	11	8	15	11	24	15
16	6	4	11	14	14	16	11	15	36	3	1	1	32
15	6	24	2	12	9	2	36	2	28	8	10	14	1
13	32	14	7	5	16	11	4	6	1	9	15	28	10
10	14	16	7	8	9	6	20	2	1	5	32	9	4
14	24	3	11	7	14	5	7	12	7	15	12	2	14
1	9	8	4	16	10	1	4	1	10	9	8	15	5
16	15	13	14	2	12	10	15	8	5	4	15	9	15
1	8	9	14	32	14	3	11	9	24	3	1	13	6

Not a multiple

Distractor

Correct Path



5's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 5 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 5, but not touching).

9	4	21	2	12	40	13	6	24	35	23	2	22	19
7	25	25	10	1	16	20	8	5	13	1	5	1	13
10	2	9	8	30	23	9	3	24	3	30	7	25	19
4	18	5	18	19	30	4	35	24	35	11	9	8	20
25	5	21	16	3	35	24	35	6	20	18	30	19	7
4	4	24	9	16	10	16	22	16	20	2	24	5	2
7	2	15	6	25	19	16	25	12	9	30	11	11	23
12	35	3	21	45	19	7	18	9	20	6	9	35	21
4	9	3	8	35	9	40	25	30	16	9	15	16	40
3	11	10	12	17	10	24	14	7	6	9	2	7	16
22	25	13	15	17	3	19	45	14	9	30	24	5	3
12	22	45	11	12	3	3	20	9	17	18	15	4	35



19	9	18	11	14	13	15	21	18	8	5	7	13	21
7	19	30	3	19	8	13	35	1	25	8	5	13	9
45	10	23	14	15	24	19	7	5	3	20	2	20	24
11	3	3	30	6	30	6	9	12	10	24	18	35	18
10	18	25	18	6	1	25	6	14	35	2	6	19	45
21	6	20	3	20	21	1	20	14	30	45	11	21	16
3	30	24	9	2	45	12	45	18	1	3	2	40	22
6	1	5	7	30	19	14	20	12	3	6	5	22	35
7	45	24	7	19	18	3	1	25	16	23	45	11	16
11	18	10	35	45	14	19	45	6	9	22	20	9	1
5	23	6	17	14	25	11	22	10	23	30	6	1	6
24	10	1	2	45	9	8	3	8	10	24	13	12	9



5's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 5 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 5, but not touching).

9	4	21	2	12	40	13	6	24	35	23	2	22	19
7	25	25	10	1	16	20	8	5	13	1	5	1	13
10	2	9	8	30	23	9	3	24	3	30	7	25	19
4	18	5	18	19	30	4	35	24	35	11	9	8	20
25	5	21	16	3	35	24	35	6	20	18	30	19	7
4	4	24	9	16	10	16	22	16	20	2	24	5	2
7	2	15	6	25	19	16	25	12	9	30	11	11	23
12	35	3	21	45	19	7	18	9	20	6	9	35	21
4	9	3	8	35	9	40	25	30	16	9	15	16	40
3	11	10	12	17	10	24	14	7	6	9	2	7	16
22	25	13	15	17	3	19	45	14	9	30	24	5	3
12	22	45	11	12	3	3	20	9	17	18	15	4	35



19	9	18	11	14	13	15	21	18	8	5	7	13	21
7	19	30	3	19	8	13	35	1	25	8	5	13	9
45	10	23	14	15	24	19	7	5	3	20	2	20	24
11	3	3	30	6	30	6	9	12	10	24	18	35	18
10	18	25	18	6	1	25	6	14	35	2	6	19	45
21	6	20	3	20	21	1	20	14	30	45	11	21	16
3	30	24	9	2	45	12	45	18	1	3	2	40	22
6	1	5	7	30	19	14	20	12	3	6	5	22	35
7	45	24	7	19	18	3	1	25	16	23	45	11	16
11	18	10	35	45	14	19	45	6	9	22	20	9	1
5	23	6	17	14	25	11	22	10	23	30	6	1	6
24	10	1	2	45	9	8	3	8	10	24	13	12	9

Not a multiple

Distractor

Correct Path



### 6's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 6 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 6, but not touching).

23	2	15	1	15	48	29	4	29	6	1	14	34	14
16	18	54	24	15	33	48	33	6	26	5	54	2	17
30	32	5	27	12	35	14	11	34	21	48	2	54	33
15	16	6	15	4	48	2	48	7	6	20	2	21	30
54	36	15	10	16	6	23	42	1	24	29	48	14	2
32	3	4	7	4	42	10	28	19	6	31	5	6	15
1	27	54	1	24	9	31	54	27	11	54	34	10	3
19	42	15	28	24	11	8	33	32	18	19	31	48	7
34	26	10	20	12	29	48	36	48	22	4	18	2	30
11	1	48	9	32	6	33	29	8	27	22	7	35	7
25	36	23	42	11	34	5	42	2	28	42	21	18	17
19	2	30	27	28	7	1	36	2	29	20	42	25	12



16	4	35	13	3	22	42	28	26	4	12	22	22	8
32	25	18	35	33	31	32	42	5	6	16	18	32	31
42	36	22	34	12	19	34	14	30	7	48	8	6	13
16	32	5	36	7	30	5	14	14	12	29	31	18	2
24	15	18	35	25	22	48	21	19	18	16	7	14	24
21	11	42	35	54	7	20	6	13	30	6	29	22	10
4	48	16	31	8	48	28	24	16	23	25	23	18	27
32	25	12	29	36	19	21	18	25	10	11	48	9	42
11	30	16	25	4	28	20	25	24	16	29	48	4	4
32	2	30	12	18	13	34	36	21	15	27	6	13	8
6	14	19	13	17	36	8	1	36	19	42	17	3	21
32	30	15	25	6	26	27	15	9	18	13	34	2	16

Math



### 6's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 6 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 6, but not touching).

23	2	15	1	15	48	29	4	29	6	1	14	34	14
16	18	54	24	15	33	48	33	6	26	5	54	2	17
30	32	5	27	12	35	14	11	34	21	48	2	54	33
15	16	6	15	4	48	2	48	7	6	20	2	21	30
54	36	15	10	16	6	23	42	1	24	29	48	14	2
32	3	4	7	4	42	10	28	19	6	31	5	6	15
1	27	54	1	24	9	31	54	27	11	54	34	10	3
19	42	15	28	24	11	8	33	32	18	19	31	48	7
34	26	10	20	12	29	48	36	48	22	4	18	2	30
11	1	48	9	32	6	33	29	8	27	22	7	35	7
25	36	23	42	11	34	5	42	2	28	42	21	18	17
19	2	30	27	28	7	1	36	2	29	20	42	25	12



16	4	35	13	3	22	42	28	26	4	12	22	22	8
32	25	18	35	33	31	32	42	5	6	16	18	32	31
42	36	22	34	12	19	34	14	30	7	48	8	6	13
16	32	5	36	7	30	5	14	14	12	29	31	18	2
24	15	18	35	25	22	48	21	19	18	16	7	14	24
21	11	42	35	54	7	20	6	13	30	6	29	22	10
4	48	16	31	8	48	28	24	16	23	25	23	18	27
32	25	12	29	36	19	21	18	25	10	11	48	9	42
11	30	16	25	4	28	20	25	24	16	29	48	4	4
32	2	30	12	18	13	34	36	21	15	27	6	13	8
6	14	19	13	17	36	8	1	36	19	42	17	3	21
32	30	15	25	6	26	27	15	9	18	13	34	2	16

Not a multiple

Distractor

Correct Path

Math





## 7's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 7 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 7, but not touching).

38	36	17	30	31	21	48	18	8	21	1	3	43	5
34	35	14	56	17	39	56	22	49	15	1	14	44	23
35	27	13	46	14	37	29	34	10	26	7	40	28	19
11	15	56	36	1	56	8	7	45	28	9	10	6	42
63	14	40	1	2	28	18	7	41	14	1	14	12	40
22	10	47	3	45	21	5	27	36	49	3	8	42	23
16	33	49	27	49	10	39	14	23	38	21	36	45	6
27	56	6	40	14	47	48	32	29	49	11	24	63	1
36	37	18	48	56	10	56	42	42	3	29	49	10	35
9	27	56	12	22	49	24	16	31	2	15	24	12	31
23	35	36	63	4	32	8	42	8	38	63	36	21	12
34	27	28	47	11	44	16	14	25	5	27	28	37	56



48	33	18	24	3	6	49	11	46	10	63	8	34	12
33	13	7	23	27	33	12	14	39	56	43	35	11	15
7	7	25	13	7	40	38	20	42	31	42	36	63	10
25	44	29	14	1	28	8	18	25	63	41	16	42	45
49	20	49	41	45	1	14	37	19	63	6	8	24	49
48	11	7	3	56	33	1	21	18	63	35	48	23	45
26	42	27	34	25	14	12	63	40	11	15	10	49	18
17	32	21	31	42	12	6	63	26	34	4	35	16	35
16	21	47	17	32	5	15	45	21	43	26	49	9	8
25	39	35	35	63	30	23	7	22	22	29	42	23	25
28	29	31	31	6	63	34	38	14	38	63	38	24	25
15	42	23	45	56	38	8	3	29	42	40	32	47	8

Math

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1



## 7's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 7 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 7, but not touching).

38	36	17	30	31	21	48	18	8	21	1	3	43	5
34	35	14	56	17	39	56	22	49	15	1	14	44	23
35	27	13	46	14	37	29	34	10	26	7	40	28	19
11	15	56	36	1	56	8	7	45	28	9	10	6	42
63	14	40	1	2	28	18	7	41	14	1	14	12	40
22	10	47	3	45	21	5	27	36	49	3	8	42	23
16	33	49	27	49	10	39	14	23	38	21	36	45	6
27	56	6	40	14	47	48	32	29	49	11	24	63	1
36	37	18	48	56	10	56	42	42	3	29	49	10	35
9	27	56	12	22	49	24	16	31	2	15	24	12	31
23	35	36	63	4	32	8	42	8	38	63	36	21	12
34	27	28	47	11	44	16	14	25	5	27	28	37	56



48	33	18	24	3	6	49	11	46	10	63	8	34	12
33	13	7	23	27	33	12	14	39	56	43	35	11	15
7	7	25	13	7	40	38	20	42	31	42	36	63	10
25	44	29	14	1	28	8	18	25	63	41	16	42	45
49	20	49	41	45	1	14	37	19	63	6	8	24	49
48	11	7	3	56	33	1	21	18	63	35	48	23	45
26	42	27	34	25	14	12	63	40	11	15	10	49	18
17	32	21	31	42	12	6	63	26	34	4	35	16	35
16	21	47	17	32	5	15	45	21	43	26	49	9	8
25	39	35	35	63	30	23	7	22	22	29	42	23	25
28	29	31	31	6	63	34	38	14	38	63	38	24	25
15	42	23	45	56	38	8	3	29	42	40	32	47	8

Not a multiple

Distractor

Correct Path

Math

www.CommonCoreSheets.com

1



## 8's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 8 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 8, but not touching).

52	23	31	11	14	40	39	21	36	40	54	57	45	27
35	24	56	48	35	17	64	42	24	44	13	8	27	14
24	51	2	63	32	25	2	58	60	20	48	27	8	22
1	49	48	60	41	32	1	32	41	40	52	51	53	72
40	48	62	18	28	40	31	16	5	24	9	72	49	49
25	20	27	20	31	24	3	12	13	32	59	63	56	10
41	11	64	26	24	22	59	40	22	57	72	47	34	25
23	32	23	50	72	30	15	29	33	8	23	44	48	53
23	62	2	44	64	39	40	24	48	47	55	48	26	8
42	17	24	22	3	24	62	59	1	51	27	12	6	18
29	16	3	64	61	30	58	64	22	50	8	36	72	50
7	5	32	20	5	61	17	56	62	30	21	32	54	64



31	27	23	26	4	53	64	43	13	15	56	23	46	41
14	50	8	5	58	7	14	40	7	24	29	48	58	63
64	72	12	19	56	49	4	54	56	42	16	13	40	5
49	19	35	40	43	40	14	9	53	24	43	41	56	23
32	5	64	57	3	27	56	34	49	24	28	15	19	72
3	18	24	25	40	23	27	32	63	64	61	43	51	
63	8	36	46	14	64	62	40	61	21	13	42	8	52
25	44	56	19	16	35	51	40	42	12	42	8	60	32
12	16	53	17	53	2	36	47	16	39	10	64	20	53
41	6	48	32	24	27	10	64	43	2	22	32	13	30
24	4	5	63	15	64	45	1	40	39	56	42	3	7
41	64	37	30	72	14	46	15	14	48	12	14	41	57

Math

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1



## 8's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 8 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 8, but not touching).

52	23	31	11	14	40	39	21	36	40	54	57	45	27
35	24	56	48	35	17	64	42	24	44	13	8	27	14
24	51	2	63	32	25	2	58	60	20	48	27	8	22
1	49	48	60	41	32	1	32	41	40	52	51	53	72
40	48	62	18	28	40	31	16	5	24	9	72	49	49
25	20	27	20	31	24	3	12	13	32	59	63	56	10
41	11	64	26	24	22	59	40	22	57	72	47	34	25
23	32	23	50	72	30	15	29	33	8	23	44	48	53
23	62	2	44	64	39	40	24	48	47	55	48	26	8
42	17	24	22	3	24	62	59	1	51	27	12	6	18
29	16	3	64	61	30	58	64	22	50	8	36	72	50
7	5	32	20	5	61	17	56	62	30	21	32	54	64



31	27	23	26	4	53	64	43	13	15	56	23	46	41
14	50	8	5	58	7	14	40	7	24	29	48	58	63
64	72	12	19	56	49	4	54	56	42	16	13	40	5
49	19	35	40	43	40	14	9	53	24	43	41	56	23
32	5	64	57	3	27	56	34	49	24	28	15	19	72
3	18	24	25	40	23	27	32	63	64	64	61	43	51
63	8	36	46	14	64	62	40	61	21	13	42	8	52
25	44	56	19	16	35	51	40	42	12	42	8	60	32
12	16	53	17	53	2	36	47	16	39	10	64	20	53
41	6	48	32	24	27	10	64	43	2	22	32	13	30
24	4	5	63	15	64	45	1	40	39	56	42	3	7
41	64	37	30	72	14	46	15	14	48	12	14	41	57

Not a multiple

Distractor

Correct Path

Math

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1



## 9's Multiplication Maze

Name: \_\_\_\_\_

Determine the multiples of 9 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 9, but not touching).

78	61	42	65	21	9	13	35	1	36	31	31	55	23
30	36	18	27	46	47	36	28	72	23	48	72	41	57
45	74	32	29	54	47	10	71	79	57	36	69	27	17
73	12	72	34	50	63	28	54	41	36	21	55	50	54
45	45	2	25	75	9	68	81	38	36	52	18	67	23
16	40	42	71	8	54	61	21	14	54	44	14	9	30
12	40	72	28	45	31	71	27	41	3	45	35	14	73
78	27	50	6	54	57	59	76	67	54	20	70	54	14
11	11	75	29	54	31	54	27	72	62	43	72	29	36
1	20	63	47	61	63	49	29	56	64	80	25	25	2
44	63	37	72	47	16	67	36	65	2	9	26	81	2
32	24	54	42	56	65	23	72	46	42	52	9	22	9



25	43	61	37	66	41	36	42	20	58	54	39	30	33
5	77	81	17	46	31	26	36	47	9	44	36	29	12
72	63	10	14	27	70	8	7	27	56	36	48	9	32
15	66	56	9	57	18	80	16	53	72	21	51	36	17
36	66	72	68	22	50	45	23	65	45	26	13	77	18
57	6	54	41	36	38	7	18	69	18	54	43	50	35
55	27	17	43	29	9	5	45	78	1	55	79	36	33
32	50	9	13	45	38	51	9	75	15	62	9	13	36
76	36	71	75	39	56	22	41	9	22	57	63	40	73
26	40	9	9	81	56	48	45	76	4	68	36	61	73
81	49	41	8	8	81	60	2	18	10	81	32	80	57
1	63	47	1	81	40	47	71	25	63	2	52	24	53

Math

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1



## 9's Multiplication Maze

Name: \_\_\_\_\_

Answer Key

Determine the multiples of 9 to find your way through the maze. Remember the numbers must be touching even if its just by a corner. Watch out for distractors (numbers that are multiples of 9, but not touching).

78	61	42	65	21	9	13	35	1	36	31	31	55	23
30	36	18	27	46	47	36	28	72	23	48	72	41	57
45	74	32	29	54	47	10	71	79	57	36	69	27	17
73	12	72	34	50	63	28	54	41	36	21	55	50	54
45	45	2	25	75	9	68	81	38	36	52	18	67	23
16	40	42	71	8	54	61	21	14	54	44	14	9	30
12	40	72	28	45	31	71	27	41	3	45	35	14	73
78	27	50	6	54	57	59	76	67	54	20	70	54	14
11	11	75	29	54	31	54	27	72	62	43	72	29	36
1	20	63	47	61	63	49	29	56	64	80	25	25	2
44	63	37	72	47	16	67	36	65	2	9	26	81	2
32	24	54	42	56	65	23	72	46	42	52	9	22	9



25	43	61	37	66	41	36	42	20	58	54	39	30	33
5	77	81	17	46	31	26	36	47	9	44	36	29	12
72	63	10	14	27	70	8	7	27	56	36	48	9	32
15	66	56	9	57	18	80	16	53	72	21	51	36	17
36	66	72	68	22	50	45	23	65	45	26	13	77	18
57	6	54	41	36	38	7	18	69	18	54	43	50	35
55	27	17	43	29	9	5	45	78	1	55	79	36	33
32	50	9	13	45	38	51	9	75	15	62	9	13	36
76	36	71	75	39	56	22	41	9	22	57	63	40	73
26	40	9	9	81	56	48	45	76	4	68	36	61	73
81	49	41	8	8	81	60	2	18	10	81	32	80	57
1	63	47	1	81	40	47	71	25	63	2	52	24	53

Not a multiple

Distractor

Correct Path

Math

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1

# Multiplication Table

**1**

$1 \times 1 = 1$   
 $1 \times 2 = 2$   
 $1 \times 3 = 3$   
 $1 \times 4 = 4$   
 $1 \times 5 = 5$   
 $1 \times 6 = 6$   
 $1 \times 7 = 7$   
 $1 \times 8 = 8$   
 $1 \times 9 = 9$   
 $1 \times 10 = 10$   
 $1 \times 11 = 11$   
 $1 \times 12 = 12$

**2**

$2 \times 1 = 2$   
 $2 \times 2 = 4$   
 $2 \times 3 = 6$   
 $2 \times 4 = 8$   
 $2 \times 5 = 10$   
 $2 \times 6 = 12$   
 $2 \times 7 = 14$   
 $2 \times 8 = 16$   
 $2 \times 9 = 18$   
 $2 \times 10 = 20$   
 $2 \times 11 = 22$   
 $2 \times 12 = 24$

**3**

$3 \times 1 = 3$   
 $3 \times 2 = 6$   
 $3 \times 3 = 9$   
 $3 \times 4 = 12$   
 $3 \times 5 = 15$   
 $3 \times 6 = 18$   
 $3 \times 7 = 21$   
 $3 \times 8 = 24$   
 $3 \times 9 = 27$   
 $3 \times 10 = 30$   
 $3 \times 11 = 33$   
 $3 \times 12 = 36$

**4**

$4 \times 1 = 4$   
 $4 \times 2 = 8$   
 $4 \times 3 = 12$   
 $4 \times 4 = 16$   
 $4 \times 5 = 20$   
 $4 \times 6 = 24$   
 $4 \times 7 = 28$   
 $4 \times 8 = 32$   
 $4 \times 9 = 36$   
 $4 \times 10 = 40$   
 $4 \times 11 = 44$   
 $4 \times 12 = 48$

**5**

$5 \times 1 = 5$   
 $5 \times 2 = 10$   
 $5 \times 3 = 15$   
 $5 \times 4 = 20$   
 $5 \times 5 = 25$   
 $5 \times 6 = 30$   
 $5 \times 7 = 35$   
 $5 \times 8 = 40$   
 $5 \times 9 = 45$   
 $5 \times 10 = 50$   
 $5 \times 11 = 55$   
 $5 \times 12 = 60$

**6**

$6 \times 1 = 6$   
 $6 \times 2 = 12$   
 $6 \times 3 = 18$   
 $6 \times 4 = 24$   
 $6 \times 5 = 30$   
 $6 \times 6 = 36$   
 $6 \times 7 = 42$   
 $6 \times 8 = 48$   
 $6 \times 9 = 54$   
 $6 \times 10 = 60$   
 $6 \times 11 = 66$   
 $6 \times 12 = 72$

**7**

$7 \times 1 = 7$   
 $7 \times 2 = 14$   
 $7 \times 3 = 21$   
 $7 \times 4 = 28$   
 $7 \times 5 = 35$   
 $7 \times 6 = 42$   
 $7 \times 7 = 49$   
 $7 \times 8 = 56$   
 $7 \times 9 = 63$   
 $7 \times 10 = 70$   
 $7 \times 11 = 77$   
 $7 \times 12 = 84$

**8**

$8 \times 1 = 8$   
 $8 \times 2 = 16$   
 $8 \times 3 = 24$   
 $8 \times 4 = 32$   
 $8 \times 5 = 40$   
 $8 \times 6 = 48$   
 $8 \times 7 = 56$   
 $8 \times 8 = 64$   
 $8 \times 9 = 72$   
 $8 \times 10 = 80$   
 $8 \times 11 = 88$   
 $8 \times 12 = 96$

**9**

$9 \times 1 = 9$   
 $9 \times 2 = 18$   
 $9 \times 3 = 27$   
 $9 \times 4 = 36$   
 $9 \times 5 = 45$   
 $9 \times 6 = 54$   
 $9 \times 7 = 63$   
 $9 \times 8 = 72$   
 $9 \times 9 = 81$   
 $9 \times 10 = 90$   
 $9 \times 11 = 99$   
 $9 \times 12 = 108$

**10**

$10 \times 1 = 10$   
 $10 \times 2 = 20$   
 $10 \times 3 = 30$   
 $10 \times 4 = 40$   
 $10 \times 5 = 50$   
 $10 \times 6 = 60$   
 $10 \times 7 = 70$   
 $10 \times 8 = 80$   
 $10 \times 9 = 90$   
 $10 \times 10 = 100$   
 $10 \times 11 = 110$   
 $10 \times 12 = 120$

**11**

$11 \times 1 = 11$   
 $11 \times 2 = 22$   
 $11 \times 3 = 33$   
 $11 \times 4 = 44$   
 $11 \times 5 = 55$   
 $11 \times 6 = 66$   
 $11 \times 7 = 77$   
 $11 \times 8 = 88$   
 $11 \times 9 = 99$   
 $11 \times 10 = 110$   
 $11 \times 11 = 121$   
 $11 \times 12 = 132$

**12**

$12 \times 1 = 12$   
 $12 \times 2 = 24$   
 $12 \times 3 = 36$   
 $12 \times 4 = 48$   
 $12 \times 5 = 60$   
 $12 \times 6 = 72$   
 $12 \times 7 = 84$   
 $12 \times 8 = 96$   
 $12 \times 9 = 108$   
 $12 \times 10 = 120$   
 $12 \times 11 = 132$   
 $12 \times 12 = 144$



Do the sums to find out what colour the shapes should be.

11/21/2017

www.hellokids.com : Print page Red and grey

**770**  
**Red**

**864**  
Grey

**882**  
Green

**900**  
Yellow

**960**  
Blue

**972**  
Brown

Multiplication problems inside the shapes include:

- $320 \times 3$
- $160 \times 2 \times 3$
- $108 \times 4 \times 2$
- $6 \times 144$
- $192 \times 5$
- $240 \times 2 \times 2$
- $60 \times 3 \times 5$
- $4 \times 4 \times 6 \times 10$
- $90 \times 2 \times 5$
- $80 \times 6 \times 2$
- $2 \times 5 \times 7 \times 11$
- $9 \times 4 \times 6 \times 4$
- $120 \times 8$
- $60 \times 2 \times 8$
- $180 \times 5$
- $240 \times 4$
- $49 \times 3 \times 6$
- $216 \times 4$
- $154 \times 5$
- $110 \times 7$
- $900 \times 1 \times 1$
- $60 \times 3 \times 5$
- $96 \times 2 \times 5$
- $64 \times 3 \times 5$
- $60 \times 2 \times 2 \times 2 \times 2$
- $45 \times 5 \times 4$
- $81 \times 4 \times 3$
- $63 \times 7 \times 2$
- $108 \times 2 \times 4$
- $154 \times 5$
- $77 \times 5 \times 2$
- $55 \times 2 \times 7$
- $144 \times 6$
- $225 \times 2 \times 2$
- $27 \times 6 \times 6$
- $162 \times 3 \times 2$
- $100 \times 3 \times 3$
- $7 \times 7 \times 2 \times 3 \times 3$
- $432 \times 2$
- $96 \times 3 \times 3$
- $96 \times 9$
- $324 \times 3$
- $162 \times 6$
- $3 \times 3 \times 3 \times 3 \times 2 \times 2$
- $9 \times 6 \times 6 \times 3$
- $144 \times 2 \times 3$
- $100 \times 9$
- $216 \times 2 \times 2$
- $108 \times 4 \times 2$
- $180 \times 5$
- $162 \times 6$
- $108 \times 9$
- $36 \times 5 \times 5$
- $243 \times 4$
- $150 \times 6$

- 504 Green
- 540 Yellow
- 660 Brown
- 672 Blue
- 720 Black

Math problems within the shape:

- $5 \times 132$
- $220 + 440$
- $220 + 220 + 220$
- $330 + 330$
- $72 \times 7$
- $336 + 168$
- $6 \times 110$
- $126 + 126 + 126 + 126$
- $224 + 224 + 224$
- $168 + 168 + 168 + 168$
- $126 + 126 + 126 + 126$
- $492 + 84 + 144$
- $84 \times 8$
- $240 + 240 + 240$
- $2 \times 360$
- $(168 \times 2) + 168$
- $120 + 120 + 120 + 120 + 120 + 120$
- $144 + 144 + 144 + 144 + 144$
- $180 + 360 + 180$
- $3 \times 168$
- $8 \times 90$
- $3 \times 240$
- $144 \times 5$
- $1 \times 540$
- $270 + 270 + 180$
- $252 \times 2$
- $126 \times 4$
- $120 + 240 + 360$
- $360 \times 360$
- $480 + 240$
- $168 + 168 + 168$
- $336 + 336$
- $96 \times 7$
- $6 \times 112$
- $168 \times 4$
- $168 + 168 + 336$
- $504 + 216$
- $3 \times 180$
- $168 + 504$
- $2 \times 336$
- $72 + 72 + 72 + 72 + 72 + 72 + 72$
- $60 \times 9$
- $180 \times 4$
- $216 + 324$
- $252 + 252$
- $120 \times 6$
- $270 + 270$
- $4 \times 135$
- $288 + (144 \times 3)$
- $6 \times 90$
- $63 \times 8$
- $108 \times 5$
- $(7 \times 100) + 20$

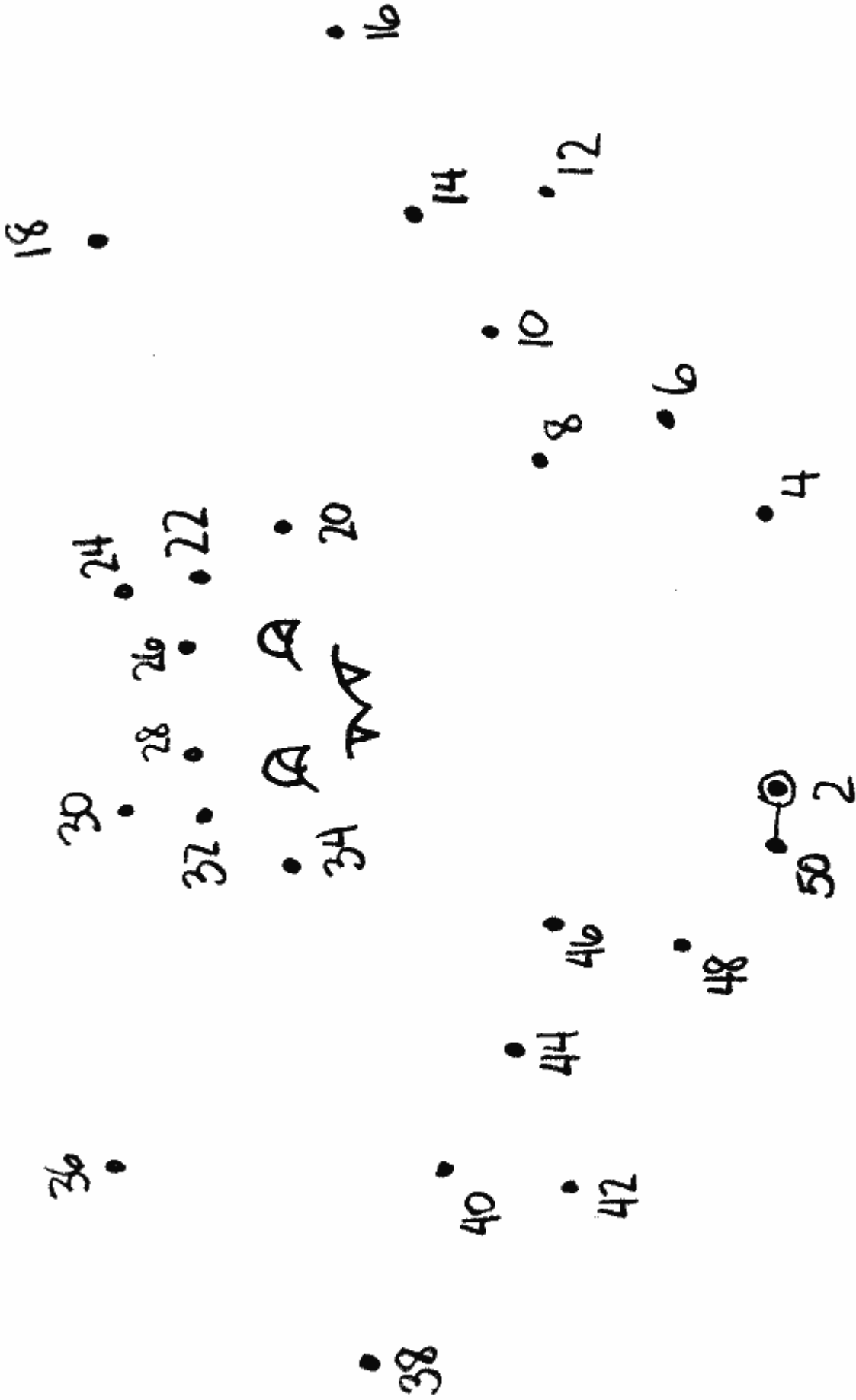




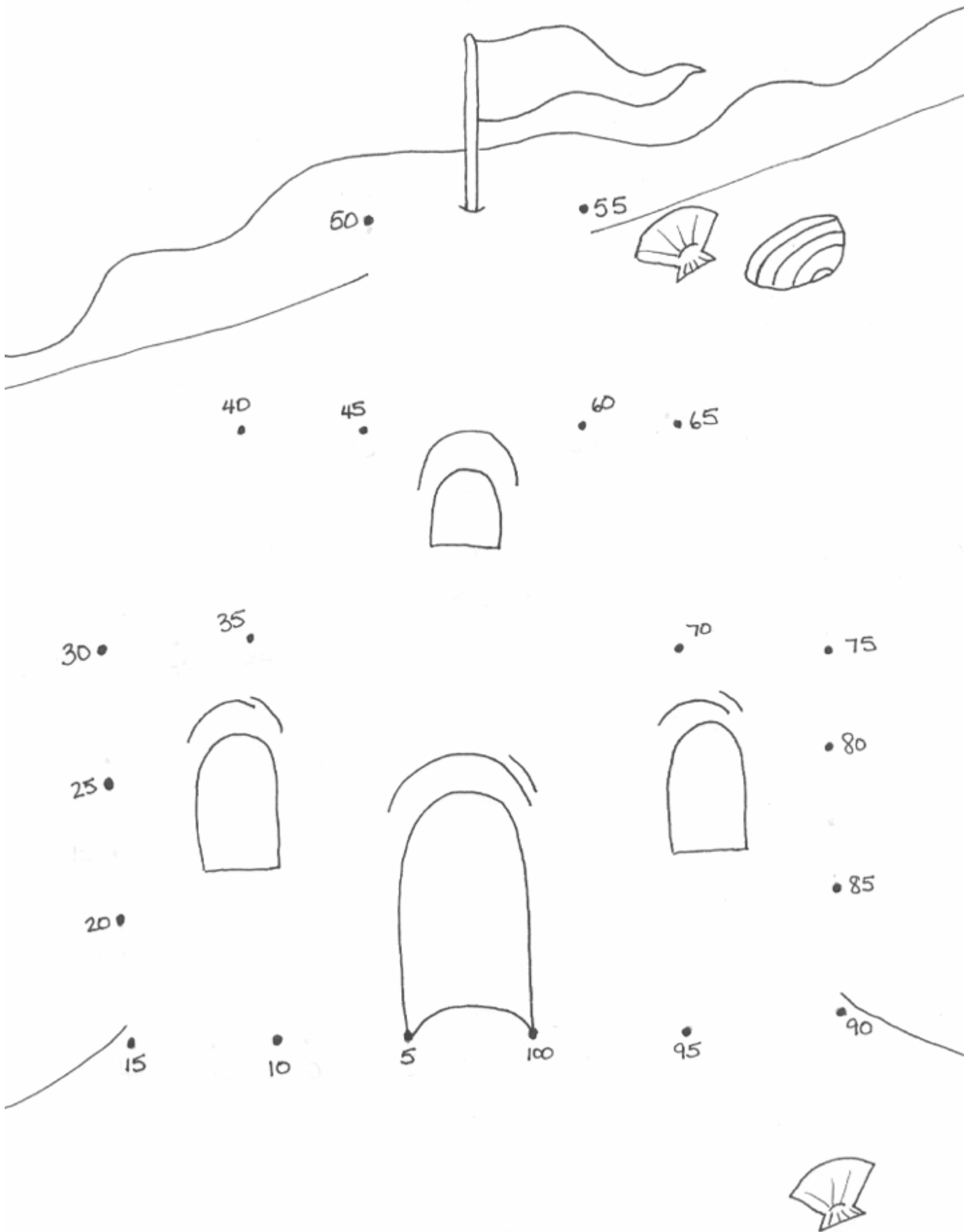
- 42** Blue
- 60** Yellow
- 72** Grey
- 84** Brown
- 90** Orange
- 96** Purple

$(74 - 10) - (13 - 9)$   $(19 \times 3) + 33$   $(84 + 9) - 3$   $(9 \times 9) + 3$   
 $84 - (27 \times 0)$   $95 - 11$   $90 - (30 - 30)$   $(45 \times 2) - 48$   $3 \times 6 \times 4$   $(8 \times 8) - 22$   
 $72 - (6 + 6)$   $60 \times (11 - 10)$   $66 + 24$   $99 - 15$   $(8 \times 8) + 20$   $72 + (3 \times 6)$   $(96 - 2) - 4$   $99 - (3 \times 3)$   $(3 \times 5)$   
 $(18 - 15) \times (18 + 2)$   $(15 - 14) \times 60$   $(8 \times 1) - 0$   $(51 + 41) - 8$   $(32 - 4) \times 3$   $(85 - 10) \times 2$   $6 \times 10$   $5 \times 9 \times 2$   $10 \times 9$   
 $(12 + 9) \times (12 - 8)$   $(5 \times 5) + (51 - 20)$   $(85 - 1) + 0$   $45 + 45$   $(95 - 8) + 3$   $(10 - 4) \times 7$   $(30 - 2) \times 3$   $5 \times 9 \times 2$   
 $(85 + 5) - (6 \times 5)$   $70 - (6 \times 4)$   $24 \times 4$   $(8 \times 10) + 4$   $(25 + 25) - 8$   $(95 - 8) + 3$   $(10 - 4) \times 7$   $(8 \times 8) - 4$   $(9 \times 10) - 9$   $10 \times 9$   
 $(18 - 15) \times (18 + 2)$   $(15 - 14) \times 60$   $(12 - 2) \times 6$   $(85 + 5) - (6 \times 5)$   $70 - (6 \times 4)$   $24 \times 4$   $(8 \times 10) + 4$   $(25 + 25) - 8$   $(95 - 8) + 3$   $(10 - 4) \times 7$   $(8 \times 8) - 4$   $(9 \times 10) - 9$   $10 \times 9$   
 $91 - 7$   $(8 \times 10) + 4$   $(10 - 4) + (30 \times 3)$   $80 - 8$   $18 \times 4$   $24 + (20 - 2)$   $94 - (60 - 8)$   $99 - 9$   $(24 + 6) \times 3$   
 $60 - (12 - 12)$   $45 + 15$   $42 + (7 \times 2 \times 3)$   $68 - (2 \times 4)$   $80 - 8$   $18 \times 4$   $24 + (20 - 2)$   $94 - (60 - 8)$   $99 - 9$   $(24 + 6) \times 3$   
 $(40 - 10) + (6 \times 5)$   $20 + (70 - 6)$   $2 \times (40 - 10)$   $(5 \times 9) + (5 \times 6)$   $(21 - 14) \times (11 + 52)$   $68 + 1$   $(33 \times 3) - 9$   $(24 + 6) \times 3$





Connect the dots counting by 2's



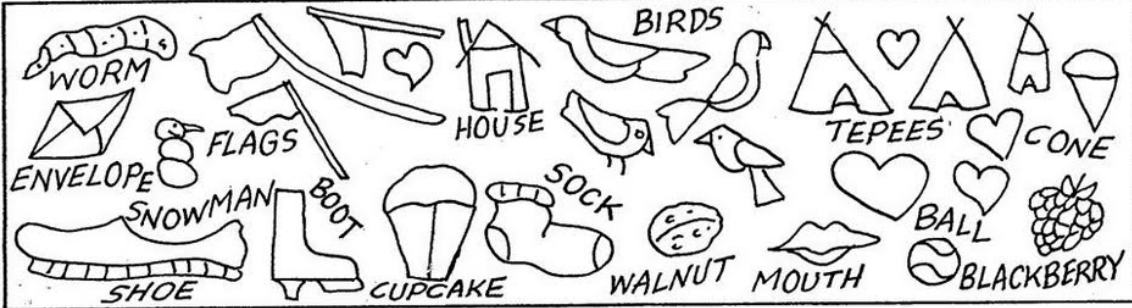
It's time to have fun!



Can you find all the hidden items?



www.hiddenpicturepuzzles.com





www.hiddenpicturepuzzles.com



