DiToM

Diagnostic Tool in Mathematics

Mathematics Screening test 8+

Name: _____

STOP!
Only turn the page and start,
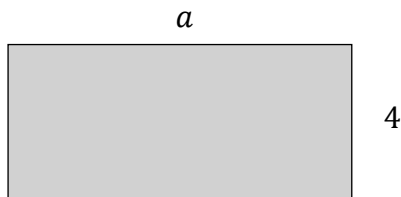*when the test administrator says so!*
Please complete the following tasks without a calculator!
Use the empty spaces for your calculations!

Part I

Task 1.1

The perimeter of a polygon is the sum of the lengths of its sides.
Which is the formula of the **perimeter (P)** of the rectangle?

a

4

$P = $ _____

_____ / 1

Task 1.2

Translate each sentence into an expression:

a) The sum of 3 and x

b) 3 less than x

c) Double of a

_____ / 3

Task 1.3

Laura has 10 books more than Jenny.
Kevin has twice as many books as Laura.

Which is the number of Kevin's books if the number of Jenny's books is n ?

$\square$ $10 + n$

$\square$ $10 + n + 2$

$\square$ $2 \cdot (n + 10)$

$\square$ $2 \cdot n + 10$

_____ / 1

_____ / 5

Task 1.4

A group of 13 friends goes to the cinema.
Each of them pays a ticket at x € and buys popcorn for 3.20 €.
Which of the following expressions indicates the price paid by the whole group?

☐ $13 + (x + 3{,}20)$

☐ $x \cdot (13 + 3{,}20)$

☐ $13 \cdot x + 3{,}20$

☐ $13 \cdot (x + 3{,}20)$

_____ / 1

Task 1.5

A calculation is defined in steps:

- Choose a number x

- Add 4 to x

- Multiply the result by 8

Which of the following expressions indicates the calculation?

☐ $8 \cdot x + 4$

☐ $x + 4 \cdot 8$

☐ $(x + 4) \cdot 8$

☐ $(8 \cdot 4) + x$

_____ / 1

Task 1.6

What is the value of $1 + 3x$ for $x = 8$?

☐ 25

☐ 32

☐ 39

☐ 48

_____ / 1

_____ / 3

Task 1.7

The equality $7x + 3 = 80$ is verified for

$\square$ $x = 7$
$\square$ $x = 8$
$\square$ $x = 10$
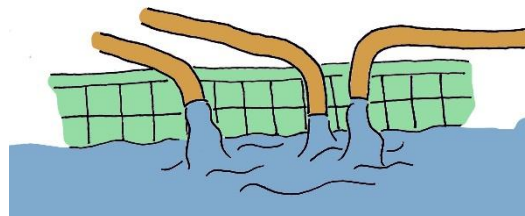$\square$ $x = 11$

____ / 1

____ / 1

Part II

Task 2.1

2 kg of potatoes cost 2.40 €. Determine the price of 5 kg.

_____ / 1

Task 2.2

If using four equal taps, a pool has taken 6 hours to fill, how many equal taps will it take to fill a pool with the same capacity in 2 hours?

_____ / 1

Task 2.3

Cross if the price we pay is directly proportional to the number of cakes we buy.

a) Table 1

Cakes	1	2	5
Price	5	10	50

☐

b) Table 2

Cakes	1	2	5
Price	11	12	15

☐

c) Table 3

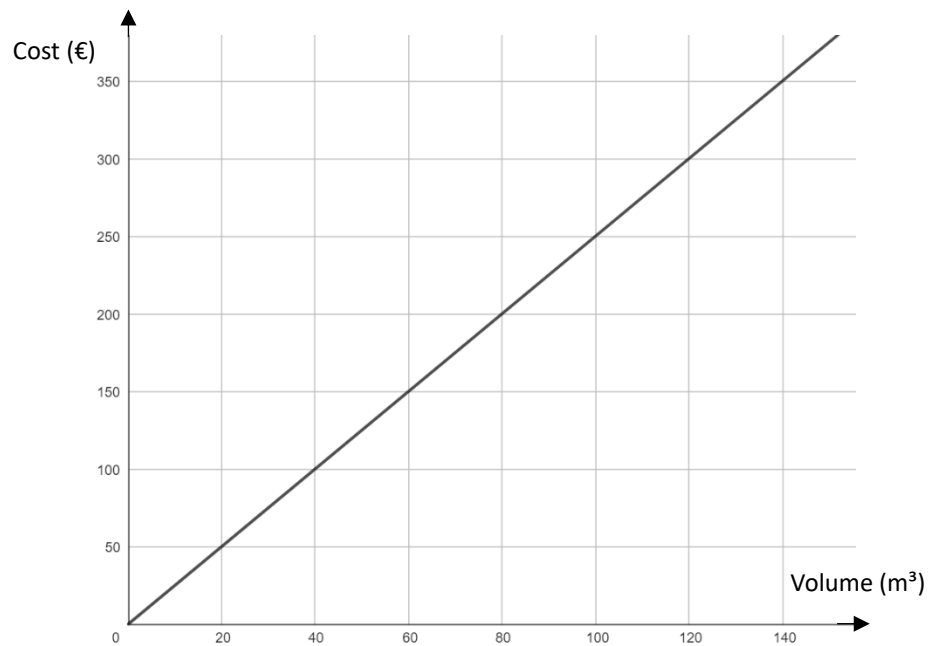| Cakes	1	2	5
Price	3	6	15

☐

_____ / 1

_____ / 3

Task 2.4

The graph shows how the cost (in euro) depend on the volume of water you consume (in m³)

a) Determine how much m^3 of water you get for 200 €.

b) Determine the price for 300 m^3 water.

_____ / 2

Task 2.5

There are 810 liters of water in a storage tank.
Every day, 30 liters of water are taken from the tank.
Calculate after how many days the tank will be empty.

_____ / 1

_____ / 3

Task 2.6

Sven invited 15 friends to his birthday party.

He has to pay 50 € for the playroom and an additional 10 € for each invited friend.

How much will Sven have to pay for his birthday celebration?

_____ / 1

_____ / 1

Part III

Task 3.1

Express the fraction $\frac{3}{5}$ as a percentage.

☐ 0.6%
☐ 6%
☐ 35%
☐ 60%

_____ / 1
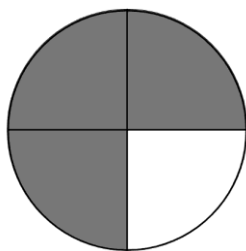
Task 3.2

If 30 is increased by 50% the result is:
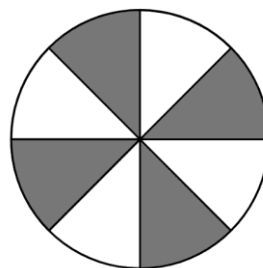
☐ 80
☐ 45
☐ 35
☐ 15

_____ / 1

Task 3.3

A part of the circle is coloured. Give the part in percentage.

a)

b)

Part of the circle: _____%

Part of the circle: _____%

_____ / 2

_____ / 4

Task 3.4

Determine the missing number.
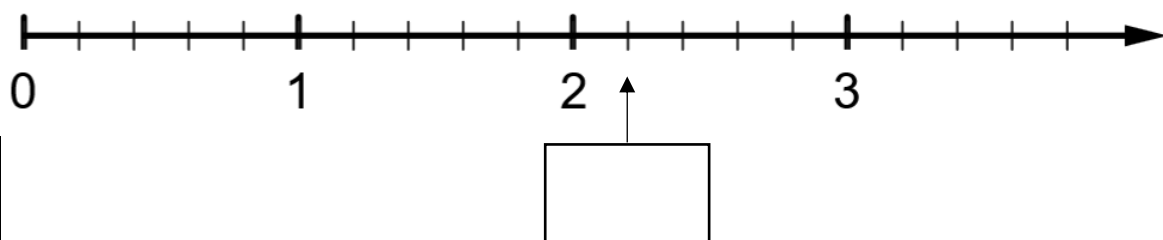
a) $12 - (-5) =$ _____

b) $11 *$ _____ $= -44$

Task 3.5

Write a number in the box that represents the position on the number line.

a)

b)