Minimum, maximum

Key definition

* Maximum definition

Let E be a set of real numbers and MЄR. M is said to be a **maximum** of E if

1) M Є E;

2) M is greater than all the other elements of E

* Minimum definition

Let E be a set of real numbers and mЄR. m is said to be a minimum of E if

1) m Є E;

2) m is smaller than all other elements of E

Exercice 1:

Find the maximum and minimum element

E = {12, 1, 98, 65, 27}

F = {35, 64, 14, 50, 37, 78, 45}

G = {5, -12, -6, 150, 54, -1}

H = {75, 10, -8, -33, -4, 66}

Exercice 2:

Determine the maximum and/or minimum of the following intervals

[3 , 89] ; [-12 , 9 [;] 56 , +∞[;] -∞ , 35]

Exercice 3

Consider the sequence U_n defined by : $U_0 = -4$ and for all natural numbers n

$U_{n+1} = U_n + 3$

1. Determine the minimum of this sequence
2. Determine the maximum of this sequence if n=5
3. Determine the maximum of this sequence if n=+∞

Linear equations with one unknown

Exercice 1
Solve:

(1) $x + 6 = 36$	(4) $2x + 5 = 75$	(7) $x / 3 = 12$
(2) $x + 12 = 120$	(5) $6x = 32$	(8) $2x / 4 = 35$
(3) $x + 43 = 93$	(6) $54 - 3x = 120$	(9) $5 - x/2 = 13$

Exercice 2
Translating Sentences into Equations and Solving

1) The sum of a number and 9 is equal to 24.

2) The difference between a number and 35 is equal to -6.

3) The product of a number and 7 is equal to 21.

4) The quotient of a number and 7 is equal to 2.

Exercice 3
Lisa has baked some madeleines, all identical. The recipe specifies that you need 30g of flour per madeleine. Lisa used a packet of 1000 g of flour. There are 200 g of flour left at the end of her preparation.
How many madeleines did Lisa make?

Exercice 4
A hotel has twenty-five identical rooms. The hotel manager decides to have all the rooms wallpapered. He has bought two hundred and two rolls of wallpaper. At the end of the work, there are five unused rolls of wallpaper.
How many rolls are needed to wallpaper one room?

Manipulating fractions

Exercice 1

Calculate and simplify the following expressions

$\frac{40}{50}$ $\frac{36}{12}$ $\frac{98}{40}$ $\frac{1020}{55}$

$\frac{250}{500}$ $\frac{39}{9}$ $\frac{455}{25}$ $\frac{912}{33}$

$\frac{2069}{27}$ $\frac{21}{35}$ $\frac{625}{93}$ $\frac{65}{130}$

Exercice 2

Work out

$\frac{1}{2}+\frac{2}{3}$ $\frac{6}{11}+\frac{9}{2}$ $\frac{17}{3}+\frac{15}{4}$

$\frac{4}{5}-\frac{1}{2}$ $\frac{5}{7}-\frac{4}{3}$ $\frac{50}{6}-\frac{10}{3}$

$\frac{2\times4}{5}-\frac{3}{2}$ $\frac{3\times2}{12}-\frac{1}{6}$ $\frac{24}{5}-\frac{23}{6}$

Exercice 3

Clare earns 650€ per week.

She spends 3/5 of the money and saves the rest.

How much money does Clare save each week?

Exercice 4

Write these fractions in order of size:

A) $\frac{1}{2},\frac{2}{3},\frac{1}{5},\frac{5}{8}$

B) $\frac{2}{5},\frac{12}{3},\frac{26}{11},\frac{35}{7}$

Cross-multiplication

Exercice 1

A person has invested 1,000€ in a savings account. Five years later, the value of the capital is 1,200€. What would the value of the capital have been after five years if he had invested 1,500€?

Exercice 2

Complete the recipe for this delicious chocolate cake.

Ingredients	**4 people**	**2 people**	**8 people**	**10 people**
Flour (g)	150			
Eggs	4			
Chocolate (g)	100			
Butter (g)	50			
Sugar (g)	150			

Exercice 3

Complete this table showing the fuel consumption of a car.

Distance travelled in km	65	98	150	200			
Fuel consumption in l	4				20	12	45

Exercice 4

A driver travelled the distance between Paris and Lyon at an average speed of 119km/h. What distance did he cover in 3h30min?

Exercice 5

Who has the fastest average speed (calculate in metres per minute)?

1- Tomas who covers 19 m in 12 min?

2- Nancy who takes 35 min to cover 400 m?

3- Cédric who covers 1.5 km in 60 min?

Exercice 6

Complete the proportionality tables

26		32
	14	59

15	72	
	22	2