

2. Algebraic expressions, equations, inequalities

Task 2.01. (0-4) (2015 - task 16)

Write down each of the following as an algebraic expression.

- a) the cube of the sum of a and b .

.....

- b) the difference of a squared and b squared

.....

- c) the quotient of the absolute value of a doubled and b

.....

- d) the cube root of the absolute value of the quotient of a and b

.

Task 2.02. (0-1) (2016 - task 04)

If $m = \frac{1-x^2}{x+1}$, $n = x - 1$, where $x \neq -1$ then the difference between m and n equals

A. 0

B. $2 - 2x$

C. $-2x$

D. $\frac{-x^2-x+2}{x+1}$

Task 2.03. (0-2) (2016 - task 19)

The equation $mx^2 + 2x - 1 = 0$ is solved for x . Complete the following sentences.

- (a) If $m = -1$, then the number of solutions to this equation is

.....

- (b) If the number $x_0 = \frac{1}{2}$ is the solution to this equation then $m =$

Task 2.04. (0-1) (2017 - task 03)

If $m = 5$ and $n = 4$, then the difference of squares of m and n is:

A. 41

B. 1

C. 81

D. 9

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Task 2.10. (0-1) (2020 – task 02)

The product of all solutions of the equation $(x - 1)(x + 2)(x - 3) = 0$ is:

- A. -6 B. -2 C. 2 D. 6

Task 2.11. (0-1) (2020 – task 03)

If $x + y = 25$ and $x - y = -4$, then $x^2 - y^2$ equals:

- A. -100 B. -29 C. 29 D. 100


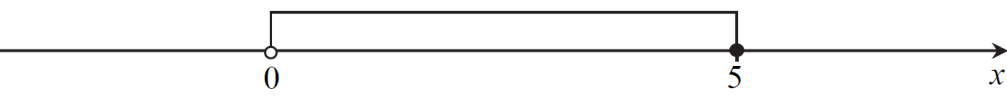
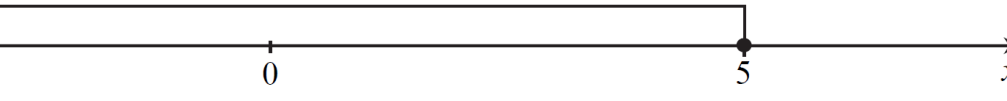
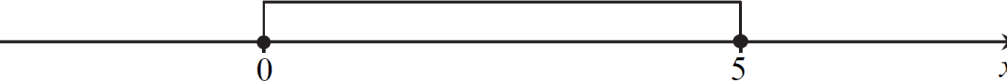
Task 2.12. (0-1) (2020 – task 08)

The expression $2(x - 3) - 5x(3 - x)$ can be written as:

A. $-10x(x - 3)$	B. $10x(x - 3)$
C. $(5x - 2)(x - 3)$	D. $(5x + 2)(x - 3)$

Task 2.13. (0-1) (2020 – task 09)

The solution set for the inequality $2 - \frac{2}{3}(x - 1) \geq -\frac{2}{3}$ is the interval:

- A. 
- B. 
- C. 
- D. 

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Task 2.14. (0-2) (2020 – task 18)

The geometrical interpretation of the set of simultaneous equations

$$\begin{cases} x + y = 2 \\ x + (1 + m)y = 1 \end{cases}$$

with the unknowns x and y are:

- (a) two parallel lines, when m equals
- (b) two perpendicular lines, when m equals

Task 2.15. (0-1) (2021 – task 01)

The square of the difference of $3x$ and y , minus the square of the sum of x and $3y$ is

- A.** $8x^2 + 8y^2 - 12xy$ **B.** $8x^2 - 8y^2$
C. $8x^2 - 8y^2 - 12xy$ **D.** $8x^2 + 8y^2$

Task 2.16. (0-1) (2021 – task 03)

The solution for the inequality

$$\frac{x - 2}{2} - \frac{9 - x}{3} > \frac{1}{6}x - 10$$

is

- A.** $(-9; +\infty)$ **B.** $(-\frac{36}{11}; +\infty)$ **C.** $(\frac{7}{2}; +\infty)$ **D.** \mathbf{R}

Task 2.17. (0-1) (2021 – task 04)

The greatest real root of the equation $x(x + 1)(3x + 4) = 0$ is

- A.** 1 **B.** 0 **C.** 2 **D.** $-\frac{4}{3}$