

Lezioni 2-3

Disequazioni con MODULI.

IN AULA.

A) Esplicitare le seguenti funzioni:

$$1. \quad f(x) = |3x - 2| - |x^2 - 2|$$

$$2. \quad f(x) = \frac{|3x - 2^2|}{|x^2 - 2|} + 2$$

B) Rappresentare graficamente:

$$1. \quad y = |x - 1| - |x^2 - x|$$

C) Elementari.

$$1. \quad |x| \geq 3 \qquad S = \{x \leq -3 \vee x \geq 3\}$$

$$2. \quad |x| \geq -3 \qquad S = \mathbb{R}$$

$$3. \quad |x| < 3 \qquad S = \{-3 < x < 3\}$$

$$4. \quad |x| < -3 \qquad S = \emptyset$$

$$5. \quad |x| > -(x^2 + 1) \qquad S = \mathbb{R}$$

$$6. \quad -|x| \geq x^2 + x + 1 \qquad S = \emptyset$$

$$7. \quad |x - 1| \geq 3 \qquad S = \{x \leq -2 \vee x \geq 4\}$$

$$8. \quad |x^2| \geq -3 \qquad S = \mathbb{R}$$

$$9. \quad |x^2| > 0 \qquad S = \{x \neq 0\}$$

$$10. \quad |x^2 + 1| \geq 3 \qquad S = \{x \leq -\sqrt{2} \vee x \geq \sqrt{2}\}$$

$$11. \quad |x^2 + x + 1| \leq -3 \qquad S = \emptyset$$

Altre.

$$12. \quad |5x + 1| + |4x - 7| > 0 \qquad S = \mathbb{R}$$

$$13. \quad |x^2 + x - 2| + |x^2 - 1| > 0 \qquad S = \{x \neq 1\}$$

$$14. \quad \frac{x + 10}{|x + 5|} > 0 \qquad S = \{x > -10 \wedge x \neq -5\}$$

$$15. \quad \frac{|x - 2|}{x} < \frac{x}{|x - 2|} \qquad S = \{x < 0 \vee (x > 1 \wedge x \neq 2)\}$$

PROPOSTE lezioni 2-3.

A) esplicitare le seguenti funzioni:

$$1. \quad f(x) = |3x - 2| - |x^2 - 2|$$

$$2. \quad f(x) = \frac{|3x - 2^2|}{|x^2 - 2|} + 2$$

$$3. \quad f(x) = 2 - |x - 2||x + 3|$$

$$4. \quad f(x) = |3x - 1|^2 - |(x - 2)^2|$$

$$5. \quad f(x) = |(3x - 2)(x^2 - 2)| - |x^2 + 1|$$

$$6. \quad f(x) = 2 - |(2x - 1)(x^2 + 2)| - |x^2 + 1|$$

$$7. \quad f(x) = \frac{-|(3x - 2)^2|}{|x^2 - 2|} - |x - 1|$$

$$8. \quad f(x) = -\frac{|-(\sqrt{3}x^2 + 1)|}{|x^2 + 2|} - |x - 1|$$

$$9. \quad f(x) = -\frac{|-(\sqrt{3}x^2 - 1)|}{|x^2 - 2|} - |x + 1|$$

B) rappresentare graficamente:

$$1. \quad y = ||x - 1| - 1| - 1|$$

$$2. \quad y = |x| - |2x^2 - x + 2|$$

C) risolvere le seguenti disequazioni:

$$1. \quad |x| \geq -2 \quad S = \mathbb{R}$$

$$2. \quad |x + 3| < -\sqrt{2} \quad S = \emptyset$$

$$3. \quad |x^2 + 1| \geq 0 \quad S = \mathbb{R}$$

$$4. \quad |(x - 2)^2| \geq 3 \quad S = \{x \leq 2 - \sqrt{3} \vee x \geq 2 + \sqrt{3}\}$$

$$5. \quad |2 - x| = -1 \quad S = \emptyset$$

$$6. \quad |x^2 - 4x + 8| \leq 0 \quad S = \emptyset$$

$$7. \quad |x^2 - 6x - 1| + 2 > 0 \quad S = \mathbb{R}$$

$$8. \quad |x^4 + 8x^2 - 9| > 0 \quad S = \{x \neq -1 \wedge x \neq 1\}$$

$$9. \quad |x^2 - 9| + |x - 3| > 0 \quad S = \{x \neq 3\}$$

$$10. \quad |x| - |x^2 + x + 1| < 0 \quad S = \mathbb{R}$$

$$11. \quad |x| - |2x^2 - x + 2| < 0 \quad S = \emptyset$$

$$12. \quad \frac{|x - 2|}{x} > \frac{x - 4}{|x - 2| + 1} \quad S = \{x > 0\}$$