

COMPITI

ES 560 p. 55

$$|9-x^2| = x-3$$

$$9-x^2 = -x+3 \vee 9-x^2 = x-3$$

$$-x^2+x+6=0$$

$$x_{1,2} = \frac{-1 \pm \sqrt{1+24}}{-2}$$

$$x_1 = 3$$

$$x_2 = -2$$

$$-x^2-x+12=0$$

$$x_{1,2} = \frac{-1 \pm \sqrt{1+48}}{-2} = \frac{-1 \pm 7}{-2}$$

$$9-x^2 > 0$$

$$x^2 < 9$$

$$-3 < x < 3$$

$$x < 3 \vee x > 3$$

$$\begin{cases} -3 \leq x \leq 3 \\ x = -4; x = 3 \end{cases}$$

Sì

$$\begin{cases} x < 3 \vee x > 3 \\ x = 3; -2 \end{cases}$$

no

$$S = \{3\}$$

Q5 561

$$|3x - x^2| - 5 = x$$

$$|3x - x^2| = x + 5$$

$$\begin{cases} 3x - x^2 \geq 0 \\ 3x - x^2 = x + 5 \end{cases}$$

$$0 \leq x \leq 3$$

(complete)

Q5 562

$$|x^2| + x = 0$$

$$|x^2| = -x$$

$$x^2 = -x$$

$$x^2 = x$$

$$x^2 - x = 0$$

$$x(x-1) = 0$$

$$x=0, x=1$$

$$x=0, x=1$$

Q5 563

$$|x - x^2| = 1 - x$$

$$\begin{cases} x - x^2 \geq 0 \\ x - x^2 = 1 - x \end{cases}$$

$$0 \leq x \leq 1$$

$$x=1$$

$$\begin{cases} x - x^2 < 0 \\ x - x^2 = -1 + x \end{cases}$$

$$x < 0 \vee x > 1$$

$$S = \{\pm 1\}$$

$$-x^2 + 3x \geq 0$$

$$x(-x+3) \geq 0$$

$$x \leq 3$$

$$-2x - 5 = 0$$

$$x_{1/2} = \frac{-1 \pm \sqrt{1-5}}{1}$$

$$-x^2 + 4x + 5 = 0$$

$$x_{1/2} = \frac{-2 \pm \sqrt{4+5}}{1} = \frac{-2 \pm \sqrt{9}}{1} = \frac{-2 \pm 3}{1}$$

$$x^2 + x \geq 0$$

$$x \leq -1 \vee x \geq 0$$

$$-1 < x < 0$$

$$x^2 + x = 0$$

$$x(x+1) = 0$$

$$x=0, x=-1$$

$$x=0, x=-1$$

$$S = \{0, \pm 1\}$$

$$x^2 - x \leq 0$$

$$0 \leq x \leq 1$$

$$-x^2 + 2x - 1 = 0$$

$$x_{1/2} = \frac{1 \pm \sqrt{1-1}}{-1} = \frac{1 \pm 0}{-1} = -1$$

$$x^2 = 1$$

$$x = \pm 1$$

$$|x^2 - 4| + 3x = 0$$

$$|x^2 - 4| = -3x$$

$$\begin{cases} x^2 - 4 \geq 0 \\ x^2 - 4 = -3x \end{cases}$$

$$\begin{cases} x^2 - 4 < 0 \\ x^2 - 4 = 3x \end{cases}$$

$$x < -2 \vee x > 2$$

$$-2 < x < 2$$

$$x^2 - 3x - 4 = 0$$

$$x_{1/2} = \frac{3 \pm \sqrt{9+16}}{2}$$

$$x_{1/2} = \frac{3 \pm \sqrt{25}}{2}$$

$$I = [-4; -1]$$

es 665

$$|3 - 5x^2 + x| = 3$$

$$|2x^2 - 5x - 3| = 3 - x$$

$$\begin{cases} 2x^2 - 5x - 3 \geq 0 \\ 2x^2 - 5x - 3 = 3 - x \end{cases}$$

$$\cup \begin{cases} 2x^2 - 5x - 3 < 0 \\ 2x^2 - 5x - 3 = -3 + x \end{cases}$$

$$x \leq -\frac{1}{2} \vee x \geq 3$$

$$\cup -\frac{1}{2} < x < 3$$

$$x_{1/2} = \frac{5 \pm \sqrt{25+24}}{4}$$

$$x \leq -\frac{1}{2} \vee x \geq 3$$

$$2x^2 - 4x - 6 = 0$$

$$x^2 - 2x - 3 = 0$$

$$x_{1/2} = \frac{2 \pm \sqrt{4+12}}{2}$$

$$x_{1/2} = 2x^2 - 6x = 0$$

$$x(x-3) = 0$$

$$x = 0 \vee x = 3$$

on

$$I = [0; 3; -1]$$

es 577

$$3|x| - |x| = 3$$

$$|3x| - |x| = 3$$

$$|2x| = 3$$

$$2x = \pm 3$$

$$x = \pm \frac{3}{2}$$

$$S = \{\pm \frac{3}{2}\}$$

es 579

$$6(|x-2|+1) = 1$$

$$|x-2| = -\frac{5}{6}$$

$$|x-2| = -\frac{5}{6}$$

$$6(|x-2|+1) = 1$$

$$6x - 12 = -5 \text{ IMP}$$

$$S: \emptyset$$

es 580

$$|x^2 - 1| = -5$$

$$\text{IMP } \forall x \in \mathbb{R}$$

es 582

$$|x^2 - x| = 6$$

$$x^2 - x = \pm 6$$

$$x^2 - x + 6 = 0$$

$$\vee x^2 - x - 6 = 0$$

$$x = \frac{1 \pm \sqrt{1-24}}{2} \text{ IMP}$$

$$x = -2 \quad x = 3$$

$$S = \{-2, 3\}$$

es 588

$$|x^2 + 2x + 3| = |-x + 3|$$

$$x^2 + 2x + 3 + x - 3 = 0$$

$$-x^2 + 2x + 3 + x - 3 = 0$$

$$x^2 - x - 6 = 0 \quad x = -2, 3$$

$$-x^2 + 3x = 0$$

$$x(-x + 3) = 0 \quad x = 0, 3$$

$$S = \{-2, 3, 0\}$$

es 5890

$$|x^2 - 16| - |-x^3| = 0$$

$$|x^2 - 16| = |x^3|$$

$$x^3 - 16 = \pm x^3$$

$$0 = 16 \quad \text{not}$$

$$2x^3 = 16$$

$$x^3 = 8$$

$$x = 2 \quad S = \{2\}$$

es 593

$$3|x||3x+2| = |2x-1|$$

$$|9x^2 + 6x| = |2x-1|$$

$$9x^2 + 6x = 2x - 1 \quad \vee \quad 9x^2 + 6x = -2x + 1$$

$$9x^2 + 4x + 1 = 0$$

$$x_{1,2} = \frac{-2 \pm \sqrt{4-9}}{9}$$

$$9x^2 + 8x - 1 = 0 \quad -1$$

$$\frac{-4 \pm \sqrt{16+36}}{9} \quad \vee \quad 1/9$$

$$S = \left\{ -1, \frac{1}{9} \right\}$$

es 595

$$|x^2 + 2x| + |3x^3| = 0$$

$$\begin{cases} x^2 + 2x = 0 \\ 3x^3 = 0 \end{cases}$$

$$x(x+2) = 0$$

$$x=0; x=-2$$

$$x=0$$

$$S = \{0\}$$

es 596

$$|2x^2 + x| + |6x| = 0$$

$$\begin{cases} 2x^2 + x = 0 \\ 6x = 0 \end{cases}$$

$$x(2x+1) = 0$$

$$x=0 \quad x=-\frac{1}{2}$$

$$x=0$$

$$S = \{0\}$$