

Löse die folgenden biquadratischen Gleichungen $ax^4 + bx^2 + c = 0$

$$2x^4 - 30x^2 + 112 = 0$$

$x_1 = 2.83 \quad x_2 = -2.83$
 $x_3 = 2.65 \quad x_4 = -2.65$

$$4.5x^4 - 4.5x^2 - 9 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 1.41 \quad x_4 = -1.41$

$$-0.5x^4 - 3x^2 = 0$$

$x_1 = 0 \quad x_2 = 0$
 $x_3 = \diamond \quad x_4 = \diamond$

$$5.5x^4 - 27.5x^2 - 198 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 3 \quad x_4 = -3$

$$-10x^4 - 100x^2 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 0 \quad x_4 = 0$

$$9x^4 - 81x^2 + 162 = 0$$

$x_1 = 2.45 \quad x_2 = -2.45$
 $x_3 = 1.73 \quad x_4 = -1.73$

$$3x^4 - 15x^2 - 108 = 0$$

$x_1 = 3 \quad x_2 = -3$
 $x_3 = \diamond \quad x_4 = \diamond$

$$-7x^4 + 448 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 2.83 \quad x_4 = -2.83$

$$-1.5x^4 + 30x^2 - 150 = 0$$

$x_1 = 3.16 \quad x_2 = -3.16$
 $x_3 = 3.16 \quad x_4 = -3.16$

$$-2x^4 - 18x^2 - 40 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = \diamond \quad x_4 = \diamond$

$$-9.5x^4 + 95x^2 - 228 = 0$$

$x_1 = 2 \quad x_2 = -2$
 $x_3 = 2.45 \quad x_4 = -2.45$

$$10x^4 + 120x^2 + 350 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = \diamond \quad x_4 = \diamond$

$$4.5x^4 - 13.5x^2 + 9 = 0$$

$x_1 = 1.41 \quad x_2 = -1.41$
 $x_3 = 1 \quad x_4 = -1$

$$6.5x^4 + 32.5x^2 = 0$$

$x_1 = 0 \quad x_2 = 0$
 $x_3 = \diamond \quad x_4 = \diamond$

$$3.5x^4 - 3.5 = 0$$

$x_1 = 1 \quad x_2 = -1$
 $x_3 = \diamond \quad x_4 = \diamond$

$$-8x^4 + 48x^2 - 40 = 0$$

$x_1 = 2.24 \quad x_2 = -2.24$
 $x_3 = 1 \quad x_4 = -1$

$$-8.5x^4 + 51x^2 + 229.5 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 3 \quad x_4 = -3$

$$7.5x^4 - 7.5x^2 - 150 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 2.24 \quad x_4 = -2.24$

$$3x^4 + 18x^2 = 0$$

$x_1 = 0 \quad x_2 = 0$
 $x_3 = \diamond \quad x_4 = \diamond$

$$-7x^4 - 70x^2 = 0$$

$x_1 = \diamond \quad x_2 = \diamond$
 $x_3 = 0 \quad x_4 = 0$