Watch. Practice. Understand. | Lesson 091

The Secret of finding x-intercepts, roots or zeros of a polynomial with TI-84, TI 84 plus or TI CE

Watch the matching video: https://www.youtube.com/watch?v=jc8jCG_plek

Practice focus: Polynomial zeros and division

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Find all zeros of $x^3 - 2x^2 + 4x - 8$.

02 Divide $x^3 - 6x^2 + 11x - 6$ by $x - 1$.

03 Find the remainder when $2x^3 - x + 5$ is divided by $x - 2$.

04 A real-coefficient polynomial has zeros 1 and 2i. Find a monic cubic with these zeros.

Watch. Practice. Understand. | Lesson 091

The Secret of finding x-intercepts, roots or zeros of a polynomial with TI-84, TI 84 plus or TI CE

Watch the matching video: https://www.youtube.com/watch?v=jc8jCG_plek

Practice focus: Graphing and fitting models

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

05 The data are (0,2), (1,5), (2,8). Find an exact linear model and predict y at x = 5.

06 The data are (0,3), (1,6), (2,12). Find an exact exponential model.

07 A fitted model predicts 12.5 when the observed value is 14. Find the residual.

08 Use a graphing tool to find the intersections of $y = x^2$ and $y = x + 2$; then verify algebraically.

Worked answers | Lesson 091

The Secret of finding x-intercepts, roots or zeros of a polynomial with TI-84, TI 84 plus or TI CE

Watch the matching video: https://www.youtube.com/watch?v=jc8jCG_plek

Practice focus: Polynomial zeros and division

Original extra practice matched to the listed lesson topic.

01 Find all zeros of $x^3 - 2x^2 + 4x - 8$.

Group: $(x - 2)(x^2 + 4)$. Zeros: 2, 2i, -2i.

02 Divide $x^3 - 6x^2 + 11x - 6$ by $x - 1$.

Synthetic division gives $x^2 - 5x + 6$ with remainder 0.

03 Find the remainder when $2x^3 - x + 5$ is divided by $x - 2$.

Remainder theorem: $f(2) = 16 - 2 + 5 = 19$.

04 A real-coefficient polynomial has zeros 1 and 2i. Find a monic cubic with these zeros.

-2i must also be a zero. $(x - 1)(x^2 + 4) = x^3 - x^2 + 4x - 4$.

Worked answers | Lesson 091

The Secret of finding x-intercepts, roots or zeros of a polynomial with TI-84, TI 84 plus or TI CE

Watch the matching video: https://www.youtube.com/watch?v=jc8jCG_plek

Practice focus: Graphing and fitting models

Original extra practice matched to the listed lesson topic.

05 The data are (0,2), (1,5), (2,8). Find an exact linear model and predict y at x = 5.

Slope 3 and intercept 2 give y = 3x + 2; y(5) = 17.

06 The data are (0,3), (1,6), (2,12). Find an exact exponential model.

The values double with each unit of x: y = 3(2)^x.

07 A fitted model predicts 12.5 when the observed value is 14. Find the residual.

Residual = observed - predicted = 14 - 12.5 = 1.5.

08 Use a graphing tool to find the intersections of $y = x^2$ and $y = x + 2$; then verify algebraically.

$x^2 - x - 2 = (x - 2)(x + 1) = 0$. Intersections (-1,1), (2,4).