**2.4 Real Zeroes of Polynomial Functions**

Target 2C: Find Real and Complex Zeroes of Polynomials by Synthetic and Long Division

**SAT Connection**

[**Passport to Advanced Mathematics**](https://collegereadiness.collegeboard.org/about/alignment/math/passport-to-advanced-math)

**11.** **Understand the relationship between zeros and factors of polynomials.**

Example:

[Solution](#SATSolution)

**Rational Zeroes Theorem**



**Watch a video or view a website to learn about Rational Zeroes Theorem**

<http://www.wtamu.edu/academic/anns/mps/math/mathlab/col_algebra/col_alg_tut38_zero1.htm> <https://www.youtube.com/watch?v=7p2yeuAXSCs>

Given a polynomial with integer coefficients,

 $f\left(x\right)= a\_{n} x^{n}+a\_{n-1}x^{n-1}+…+a\_{1}x+ a\_{0}$ ,

then $x=\frac{p}{q}$ is a rational zero of $f(x)$.

 where $\frac{p}{q}=\frac{ }{ }$

(write an example from the website/video)

*Example* 1:

*Example* 2:

Find the rational zeroes of $f\left(x\right)=2x^{3}-3x^{2}-23x+12$

* Factors of the constant →
* Factors of the *l*.*c*. →
* Possible rational zeroes:

*Example 3:*

Find the zeroes of $f\left(x\right)=x^{3}-6x^{2}+7x+4$ and identify as rational or irrational.

**More Practice**

**Rational Zeroes Theorem**

<http://www.sparknotes.com/math/algebra2/polynomials/section4.rhtml>

<http://www.virtualnerd.com/algebra-2/polynomials/roots-zeros/rational-zero-theorem/rational-zeros-example>

<http://www.math-prof.com/Alg2/Alg2_Ch_16.asp>

<https://www.youtube.com/watch?v=YMyv9-9VXw4>

<https://www.youtube.com/watch?v=7mNBBBspqUc>

**[Homework Assignment](http://www.mathkanection.com/uploads/8/4/4/3/84436602/book2.pdf)**

p.217 #33,34,49,51,54,71,72

**SAT Connection**

**Solution**

