w↑

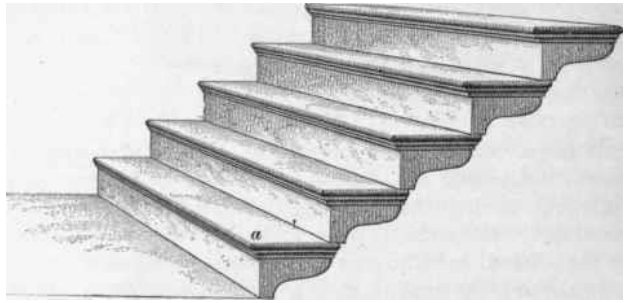
List the factors of the following numbers:

1. 28

2. 64

Rational Root Theorem

SOLVING WITHOUT A GRAPHING CALCULATOR



1. Call the Constant at the end of the expression *"p"*
   - List all the factors of *p*
2. Call the Leading Coefficient *"q"*
   - List all the factors of *q*
3. Make a list of all of the possible $\pm\frac{p}{q}$ values
   - These are all of the potential rational roots that your function will have
4. Test the roots using the remainder theorem, or by using synthetic division
5. Repeat as necessary

Example

$f(x) = 2x^4 - 3x^3 - 21x^2 - 2x + 24$

Example

$f(x) = 54x^3 - 141x^2 + 11x + 10$

To-Do

1. List all the possible rational roots ($\pm\frac{p}{q}$ values)
2. Algebraically find the x-intercepts and classify them (show all work)
3. Find y-intercept
4. List end behavior
5. Make a sketch of the graph

1. $f(x) = x^4 - 3x^2 + 2$

2. $f(x) = 4x^3 - 8x^2 + x + 3$

3. $f(x) = x^3 + 6x^2 - 13x - 6$

4. $f(x) = 36x^4 - 13x^2 + 1$

5. $f(x) = x^3 - 9x^2 + 27x - 27$

6. $f(x) = x^4 - 3x^3 - 11x^2 + 3x + 10$

7. $f(x) = 2x^3 + 3x^2 + 5x + 2$

8. $f(x) = 2x^3 - 7x^2 + 4x + 3$

9. $f(x) = 2x^3 + x^2 - 1$

10. $f(x) = x^3 - x^2 - 8x + 12$