

MHF4U – Graphing and Finding Zeros with the Help of Long Division

INTRODUCTION

Divide 64 by 15

$$15\sqrt{64}$$

So $64 = \underline{\quad\quad} \times \underline{\quad\quad}$

Divide 918 by 54

$$54\sqrt{918}$$

So 918 = _____ x _____

PROBLEM 1:

1. Divide $x^3 + 4x^2 - 4x - 7$
by $(x+1)$.

$$x + 1 \overline{\sqrt{x^3 + 4x^2 - 4x - 7}}$$

DON'T ERASE THIS WORK!!!

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

- Basic Shape
- End behaviors
- y-intercept

3. Write $f(x)$ in factored form (using what you found in #1)

4. Now make a better sketch from what you see in the factored form.

PROBLEM 2:

1. Divide $x^3 - 7x - 6$ by $(x-3)$

$$x - 3 \sqrt{x^3 - 7x - 6}$$

2. Sketch $f(x) = x^3 - 7x - 6$

Basic Shape

End behaviors

y-intercept

3. Write $f(x)$ in factored form
(using what you found in
#1)

4. Now make a better sketch
from what you see in the
factored form.

PROBLEM 3:

Sketch

$$f(x) = 6x^3 - 2x - 15x^2 + 5$$

if you know that $(2x-5)$ is a factor.

PROBLEM 4:

Sketch

$$f(x) = x^3 + 6x^2 - x - 30$$

if you know that $(x+5)$ is a factor.

PROBLEM 5:

Sketch

$$f(x) = x^3 - 5x^2 - 2x + 24$$

if you know that $(x-3)$ is a factor.

PROBLEM 6:

$$f(x) = x^4 + x^2 - 20$$

if you know that $(x+2)$ is a factor.