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

INTRODUCTION

Divide 64 by 15

$$15\sqrt{64}$$

So 64 = \_\_\_\_ x \_\_\_\_\_\_

Divide 918 by 54

$$54\sqrt{918}$$

So 918 = \_\_\_\_\_ x \_\_\_\_\_\_\_

PROBLEM 1:

1. Divide x3 +4x2 -4x -7

by (x+1).

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

DON’T ERASE THIS WORK!!!

1. Sketch f(x)= x3 +4x2 -4x -7
* Basic Shape
* End behaviors
* y-intercept
1. Write f(x) in factored form (using what you found in #1)
2. Now make a better sketch from what you see in the factored form.

PROBLEM 2:

1. Divide x3 – 7x -6 by (x-3)

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

1. Sketch $f(x)= x^{3} -7x – 6$

Basic Shape

End behaviors

y-intercept

1. Write f(x) in factored form (using what you found in #1)
2. 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.