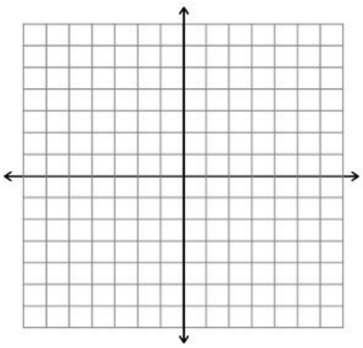
A3.3B Long Division

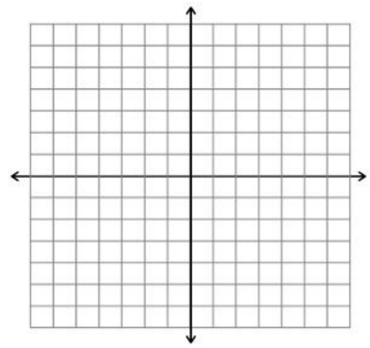
Name

1. Graph a sketch of a polynomial with a degree of x^3, that has zeros of -1, 4, and 2. Write an equation with a scale factor of 1 in x-intercept form.



End behavior: As x $\rightarrow$ $-\infty$, y$\rightarrow$ ___
as x $\rightarrow$ ∞, y$\rightarrow$ ___

2. Graph a sketch of a polynomial with a degree of 4, with zeros of 0, 3,3, & 5. Write an equation for this graph with a scale factor of -1 in x-intercept form.



End behavior: As x $\rightarrow$ $-\infty$, y$\rightarrow$ ___
as x $\rightarrow$ ∞, y$\rightarrow$ ___

3. Divide using LONG DIVISION: SHOW ALL WORK NEATLY.
$(2x^3 - 1)/(2x + 4)$

4. Divide using LONG DIVISION: SHOW ALL WORK NEATLY.
$(x^4 - 2x^3 + 3x^2 - 4x + 6)/(x^2 + 2x - 1)$

5. Divide using LONG DIVISION: SHOW ALL WORK NEATLY.
$(x^4 - 3x^3 + 6x^2 - 3x + 5)/(x^2 + x)$

6. Divide:
$$\frac{x^3 - 3x + 2x^4}{2x - 3}$$

7. Divide with long division:

$$\frac{3x^3-5x^2+4x-2}{3x+1}$$

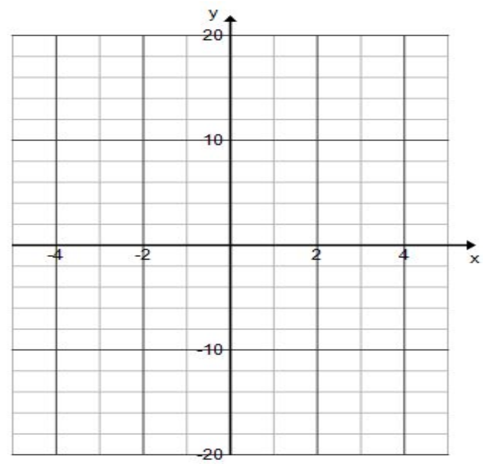
8. Divide using Long Division:

$$\frac{x^6+x^4+x^2+1}{x^2+1}$$

9.WITHOUT A CALCULATOR, complete the table using the remainder theorem and or factoring, and then sketch the graph. $f(x)=x^3+3x^2-4x-12$

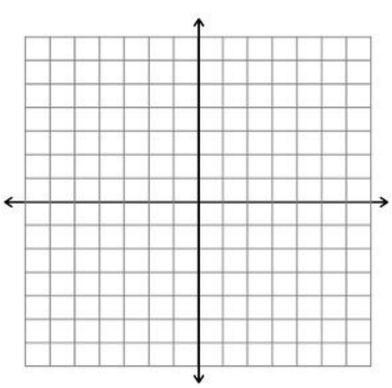
x	y

10. Graph for 9 without a calculator.



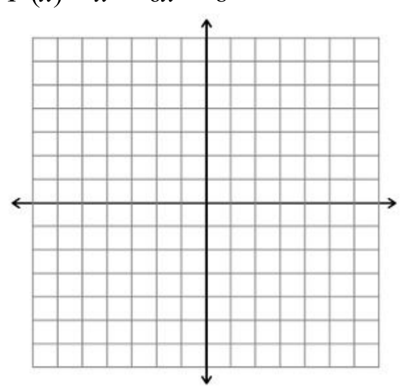
11. Use Synthetic division to decide if the first polynomial is a factor of the second polynomial. If it is find the rest of the factors, and graph.

$x-2;\quad x^3+3x-4$



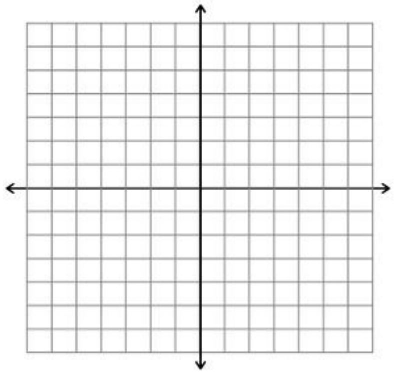
12. Factor to find all the zeros, then graph.

$P(x)=x^4-6x^2+8$



14. Factor to find all the zeros, then graph.

$P(x) = 4x^3 + 5x^2 - 36x - 45$

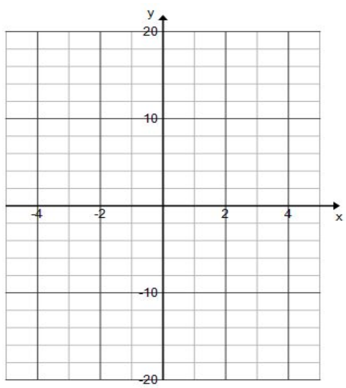


15. If a polynomial has a degree of 5, complete the table below to write how many real and complex solutions are possible.

Real	Imaginary

16. Factor to find all the zeros, then graph.

$P(x) = -2x^3 + 18x^2 - 28x$



17. Factor to find all the zeros.

$f(x) = x^3 + 2x^2 - 5x - 10$

18. Factor to find all zeros.

$f(x) = x^4 - 21x^2 - 100$

______,_______,_______

19. If it is given that a zero is at 4, find the remanding zeros. Write in factored form.

$f(x) = 2x^3 - 15x^2 + 19x + 36$

ZEROS ______,______,______

Linear Factored Form f(x)= (x)(x)(x)

20. If it is given that a zero is at -2, find the remanding zeros. Write in factored form.

$f(x) = x^3 - 8x^2 + 2x + 44$

______,_______,_______

$P(x) = (x \quad)(x \quad)(x \quad)$