

Name:

Class Period:

SM3

Worksheet 2.B Synthetic Division

Synthetic Division - NO CALCULATOR ON THIS ASSIGNMENT!

1. Use synthetic division to find which point is on the graph:

$$f(x) = x^3 + x^2 - 20x \quad \text{In other words find } f(-1).$$

- A. $(-1, 20)$
 B. $(-1, 10)$
 C. $(-1, 13)$
 D. $(-1, 19)$

What values of x , when substituted in the expression $x^3 - 11x^2 + 23x + 35$, result in an output of zero?

- (A) 7, 5, 1
 (B) 35, 7, -1
 (C) 7, 5, -1
 (D) 5, -1, -7

2.

3. Divide: $\frac{x^4 - 4x^2 - 3x}{x+3}$ If $f(x) = x^4 - 4x^2 - 3x$, what is the value of $f(-3)$?

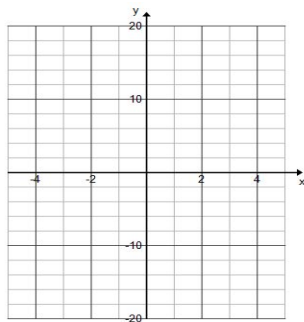
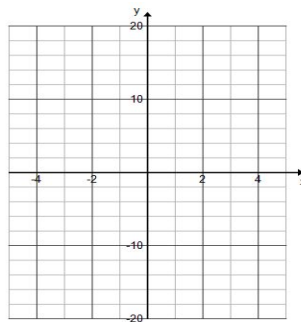
Divide.

$$\frac{x^3 + 8x + 7}{x+1}, x \neq -1$$

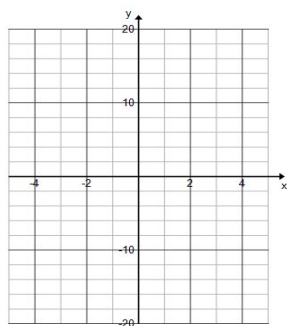
- (A) $x^2 - x + 9 - \frac{2}{x+1}$
 (B) $x^2 - x + 9 - \frac{2}{x^3 + 8x + 7}$
 (C) $x^2 + x + 9 + \frac{16}{x+1}$
 (D) $x^2 + x + 9 + \frac{16}{x^3 + 8x + 7}$

4.

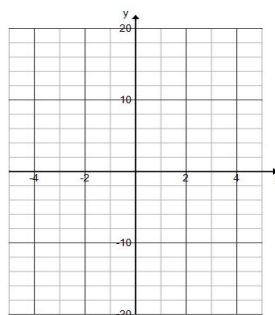
Use synthetic division with the zero given to find the quadratic to factor. Write in Factored Form, and then list all the zeros from low to high. Sketch a quick graph with the correct x and y-intercepts and shape.

5. $f(x) = x^3 + 2x^2 - 15x$ Zero is at 36. $f(x) = x^3 + 2x^2 - 11x - 12$ Zero is at -1

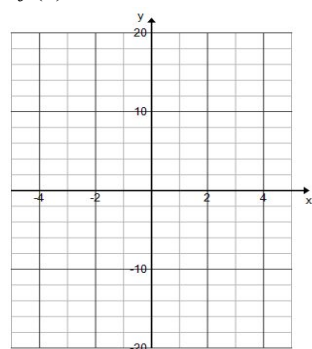
7. $f(x) = x^3 - 11x^2 + 38x - 40$ zero is at 4



8. $f(x) = x^3 + 9x^2 + 26x + 24$ zero is at -2



9. $f(x) = x^3 + x^2 - 6x$ zero is at 2



10. Factor the following:

a. $x^2 - 1$

b. $x^2 + 1$

c. $x^2 + x$

11. Simplify:

a. $(4 + \sqrt{-25})(3 - \sqrt{-4})$

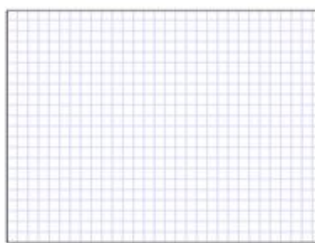
b. $(4 + \sqrt{-25}) - (3 - \sqrt{-4})$

12. Solve with the quadratic Formula:

$x^2 + 97 = 2x$

13. Solve algebraically: $2(x - 5)^{4/3} - 5 = 26$

14. Solve Graphically: $2(x - 5)^{4/3} - 5 = 26$



Window x: [,] y: [,]

15. Solve for a: $\frac{3x^8-4a}{x^3} = 6x^5$

16. Find the area and perimeter of the following triangle.



$AB = 10\sqrt{3}$, and $AC = 5\sqrt{3}$.

Find:

$BC =$

The AREA:

The PERIMETER:

17. Write an equation of a quadratic with a zero at $-11i$.

18. Graph $f(x) = (x+3)(x-6)(x-2)$. Find the y-intercept by plugging $x=0$ into equation, and label it on your graph. Label the intercepts on your graph.

