

Math III Unit 3 Review

Name: _____

For number 1, (a)Simplify and write in standard form and classify by (b) degree and (c) number of terms.

(NC.M3.A-SSE.2 DOK 2)

1. $(-2x^4 - x^2 + 8) + (3x^4 - 2x - 5)$

1a. _____

1b. _____

1c. _____

2. Find the zeros of $y = 3x(x - 9)(x + 4)$

2. _____

For question 3 (1) find the zeros of the function, (2) simplify and write in standard form and (3) classify using the degree and # of terms. (NC.M3.A-APR.3 DOK 2)

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

Zeros: _____

Standard form: _____

Classify- Degree: _____

Classify- # of term(s): _____

Factor the following for #4-5. Show ALL work. (NC.M3.A-APR.3 DOK 1)

_____ 4. $x^3 - 7x^2 - 8x$

_____ 5. $3x^2 - 60x + 300$

- a) $(2x - 1)(x + 4)$
- b) $x(x + 1)(x - 8)$
- c) $x(2x - 1)(x + 4)$
- d) $(x + 1)(x - 8)$

- a) $(x + 10)(x - 10)$
- b) $3(x + 10)(x - 10)$
- c) $(x + 30)(x - 30)$
- d) $3(x - 10)^2$

Solve by factoring for #6-7. Show ALL work and give exact answers. (NC.M3.A-APR.3 DOK 1)

_____ 6. $x^4 - 8x^2 = 48$

_____ 7. $x^3 - 2x^2 + 9x - 18 = 0$

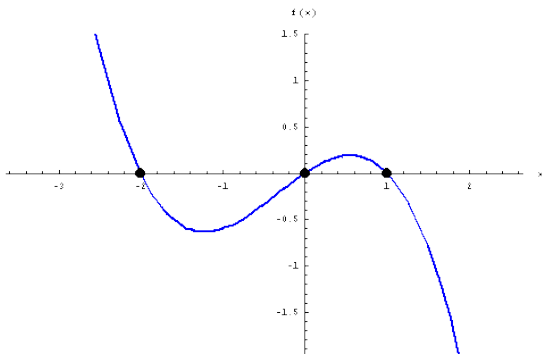
8. Factor: $x^2 - y^2$

9. Determine which binomial is a factor of: $x^3 - x^2 + 4x - 12$.

- a) $(x + 2)$
- b) $(x + 8)$
- c) $(x - 2)$
- d) $(x - 8)$

10. What are the zeros of the following graph? (NC.M3.A-APR.3 DOK 1)

10. _____

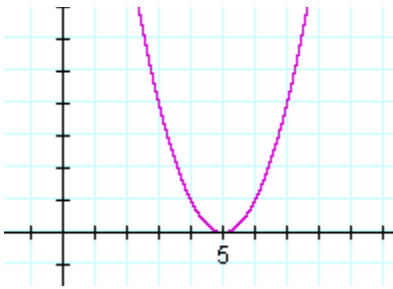


11. Solve by completing the square: $x^2 - 6x + 41 = 0$. (NC.M3.A-APR.3 DOK 3)

12. Write the polynomial in standard form that has zeros of 0 , $-\frac{2}{3}$, and 2 . (NC.M3.F-BF.1a DOK 2)

13. Write the polynomial in standard form that has zeros of 2 and $-4i$. (NC.M3.F-BF.1b DOK 2)

14. Write the polynomial in standard form given the graph. (NC.M3.F-BF.1a DOK 2)



Divide using synthetic or long division. (NC.M3.A-APR.2 DOK 1)

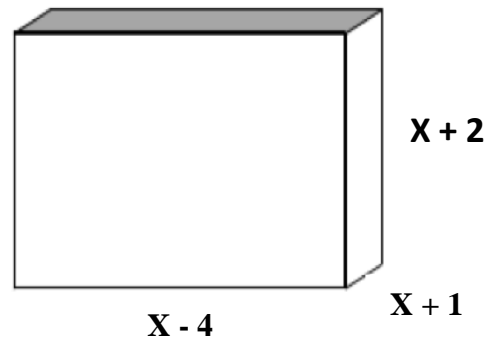
15. $(50x^3 + 10x^2 - 35x - 7) \div (5x - 4)$

16. $\frac{x^3 - 13x^2 + 40x + 18}{x - 7}$

15. _____

16. _____

17. The dimensions of this rectangular prism are given algebraically. Write a polynomial function that represents the **volume** of this prism in **standard** form. (NC.M3.G-GMD.3 DOK 3)



$V(x) =$ _____

18. A rectangle has the dimensions of $(x - 2)$ and $(-x + 10)$. (NC.M3.A-SSE.1a DOK 3)

a) Write an equation to model the area in factored form of the rectangle.

b) At what x -value does the maximum area occur?

c) What is the maximum area of the box?