

Name: _____

Date: _____

POLYNOMIAL CHALLENGE
COMMON CORE ALGEBRA II

As you've seen in previous lessons, when the zeroes of a polynomial are known, its equation can easily be written in factored form:

$$y = a(x - z_1)(x - z_2)(x - z_3)\dots$$

where z_1, z_2, z_3, \dots are the zeroes (x -intercepts) of the function and a is the vertical stretch constant. Recall that when a is negative, it also has the effect of reflecting the polynomial across the x -axis.

In this activity, you must find the equations of 20 different polynomials in factored form that are displayed on the graphing site Desmos. The first six slides help you review important information about finding polynomial equations. The **first three** polynomials have an a -value of 1. For all the remainder, an additional point has been marked on the graph that can be used to calculate a . Click on it to see the exact coordinates.

Go to **Student.Desmos.Com** and enter the following Room Number: **XCGDC**

After you work through the first six slides, place equations for the first three polynomials below and then show work for the remainder of the polynomials.

Polynomial Challenge #1 (Slide 7)

Final Equation:

Polynomial Challenge #2 (Slide 8)

Final Equation:

Polynomial Challenge #3 (Slide 9)

Final Equation:



Polynomial Challenge #4 (Slide 10)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #5 (Slide 11)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #6 (Slide 12)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #7 (Slide 13)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #8 (Slide 14)	Calculation of a (if needed)
Final Equation:	



Polynomial Challenge #9 (Slide 15)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #10 (Slide 16)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #11 (Slide 17)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #12 (Slide 18)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #13 (Slide 19)	Calculation of a (if needed)
Final Equation:	



Polynomial Challenge #14 (Slide 20)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #15 (Slide 21)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #16 (Slide 22)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #17 (Slide 23)	Calculation of a (if needed)
Final Equation:	



Polynomial Challenge #18 (Slide 24)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #19 (Slide 25)	Calculation of a (if needed)
Final Equation:	

Polynomial Challenge #20 (Slide 26)	Calculation of a (if needed)
Final Equation:	



POLYNOMIAL CHALLENGE FINAL RESULTS COMMON CORE ALGEBRA II

Place your final equations, in factored form, in the blanks below.

Challenge #1: _____

Challenge #2: _____

Challenge #3: _____

Challenge #4: _____

Challenge #5: _____

Challenge #6: _____

Challenge #7: _____

Challenge #8: _____

Challenge #9: _____

Challenge #10: _____

Challenge #11: _____

Challenge #12: _____

Challenge #13: _____

Challenge #14: _____

Challenge #15: _____

Challenge #16: _____

Challenge #17: _____

Challenge #18: _____

Challenge #19: _____

Challenge #20: _____

