

Name: _____ Date: _____ Period: _____

4.5 Solving Polynomial Equations CYU

Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Solving polynomial equations by factoring	1	2	
GCF	1		
Factoring by Grouping	2		
Factoring Trinomials		1	
Finding zeros	3, 4	5	
Sketching Polynomials	3 - 5		
Finding all real solutions		6, 7	

Solve the equation. Show all work to earn full credit.

1. $2x^4 - 4x^3 = -2x^2$

2. $y^3 - 27 = 9y^2 - 27y$

Find the zeros of the function. Then sketch a graph of the function.

3. $h(x) = x^4 + x^3 - 6x^2$

4. $h(x) = -x^3 - 2x^2 + 15x$

5. $P(x) = x^3 - 5x^2 - 4x + 20$

Find all the real solutions of the equation.

6. $x^3 + x^2 - 17x + 15 = 0$

7. $x^3 - 16x^2 + 55x + 72 = 0$

8. $3x^3 + x^2 - 38x + 24 = 0$

Find all the real zeros of the function.

9. $p(x) = 2x^3 - x^2 - 27x + 36$

10. $G(x) = 3x^3 - 25x^2 + 58x - 40$

Write a polynomial function f of least degree that has a leading coefficient of 1 and the given zeros.

11. $-2, 3, 6$

12. $-2, 1 + \sqrt{7}$

13. $-6, 0, 3 - \sqrt{5}$

14. MODELING WITH MATHEMATICS During a 10-year period, the amount (in millions of dollars) of athletic equipment E sold domestically can be modeled by $E(t) = -20t^3 + 252t^2 - 280t + 21,614$, where t is in years.

a) Write a polynomial equation to find the year when about \$24,014,000,000 of athletic equipment is sold.

b) List the possible whole-number solutions of the equation in part (a). Consider the domain when making your list of possible solutions.

c) Use synthetic division to find when \$24,014,000,000 of athletic equipment is sold.

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

