

4.8 Analyzing Graphs of Polynomial Functions DAY ONE 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

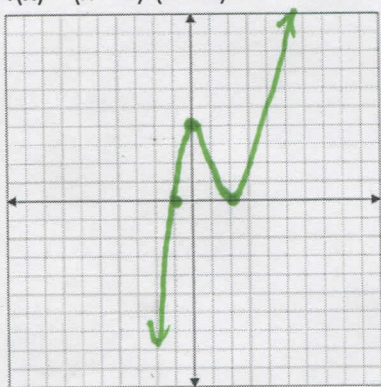
X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Graphing polynomial functions	1, 2, 7, 8	3	4, 9, 10
Finding real zeros or x-intercepts	5, 7, 8	6	9, 10
Finding local/relative max/min	7 - 10		
Increasing/decreasing in interval notation			7 - 10
Domain/range in interval notation		7 - 10	
Odd/even function	7 - 10		

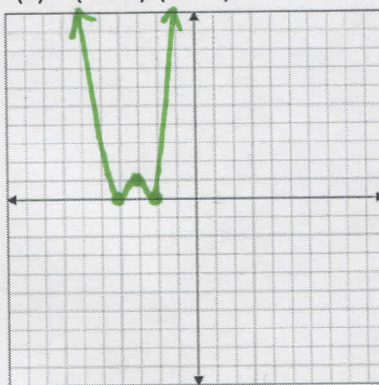
Graph the function. Label the key points either on the graph or off the graph.

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



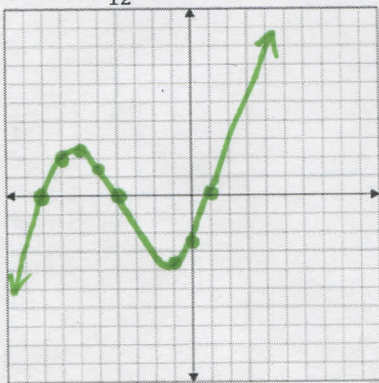
$(-1, 0)$
 $(0, 4)$
 $(2, 0)$

2. $f(x) = (x+2)^2(x+4)^2$



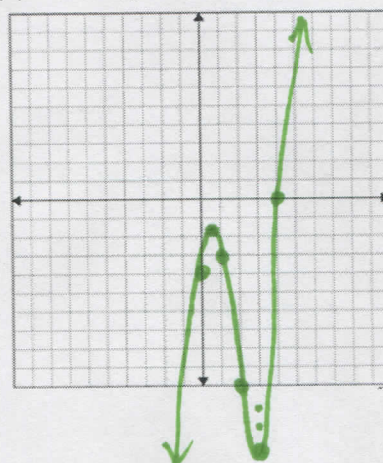
$(-4, 0)$
 $(-2, 0)$
 $(-3, 1)$
 $(0, 20)$

3. $g(x) = \frac{1}{12}(x+4)(x+8)(x-1)$



$(-8, 0)$
 $(-7, 2)$
 $(-5, 1.5)$
 $(1, 0)$
 $(0, -2.3)$
 $(-1.063, -3.503)$
 $(-6.27, 2.379)$

4. $f(x) = (x-4)(2x^2-2x+1)$



$(0, -4)$
 $(0.5, -1.75)$
 $(4, 0)$
 $(2, -10)$
 $(3, -13)$
 $(1, -3)$

Find all real zeros of the function.

5. $h(x) = 2x^3 + 7x^2 - 5x - 4$

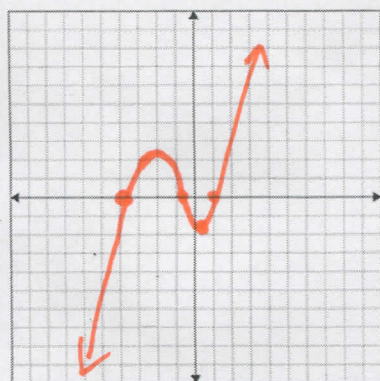
$x = -\frac{1}{2}, 1, \frac{1}{2} - 4$

6. $h(x) = 4x^3 - 2x^2 - 24x - 18$

$x = 3, -1, -\frac{3}{2}$

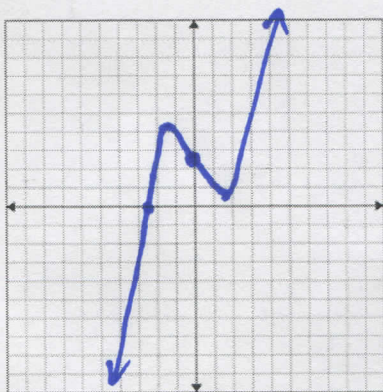
Sketch the graph. Identify the x -intercepts and the points where the local maximums and local minimums occur. State if the graph is an odd or even function. Determine the intervals for which the function is increasing or decreasing. State the domain and range in interval notation too.

7. $g(x) = 2x^3 + 8x^2 - 3$



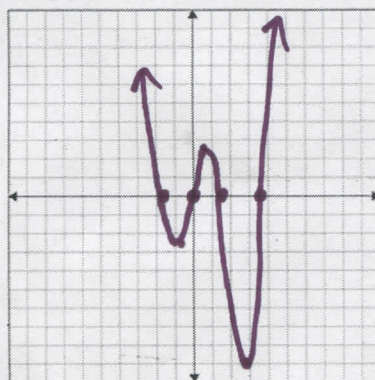
x-int: -3.90, -0.67, 0.57
 local max: (-2.67, 15.96)
 local min: (0, -3)
 odd even D: 3
 increasing: $(-\infty, -2.67) \cup (0, \infty)$
 decreasing: $(-2.67, 0)$
 domain: $(-\infty, \infty)$
 range: $(-\infty, \infty)$

8. $f(x) = .5x^3 - 2x + 2.5$



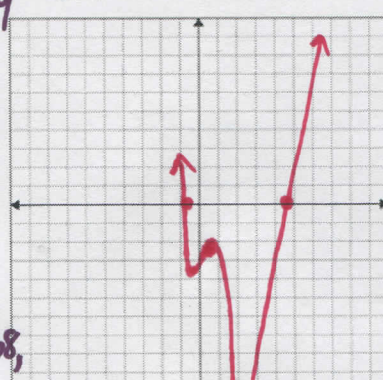
x-int: -2.46
 local max: (-1.15, 4.04)
 local min: (1.15, 0.96)
 odd even D: 3
 increasing: $(-\infty, -1.15) \cup (1.15, \infty)$
 decreasing: $(-1.15, 1.15)$
 domain: $(-\infty, \infty)$
 range: $(-\infty, \infty)$

9. $f(x) = 0.7x^4 - 3x^3 + 5x$



x-int: -1.15, 0, 1.64, 3.79
 local max: (0.87, 2.78)
 local min: (-0.68, -2.31) $\frac{1}{2}$
 odd even D: 4
 increasing: $(-0.68, 0.87)$
 decreasing: $(-\infty, -0.68) \cup (-0.68, 0.87) \cup (3.02, \infty)$
 domain: $(-\infty, \infty)$
 range: $[-9.3, \infty)$

10. $g(x) = x^4 - 5x^3 + 2x^2 + x - 3$



x-int: -0.77, 4.54
 local max: (0.47, -2.56)
 local min: (-0.16, -3.09) $\frac{1}{2}$
 odd even D: 4
 increasing: $(-0.16, 0.47) \cup (3.44, \infty)$
 decreasing: $(-\infty, -0.16) \cup (0.47, 3.44)$
 domain: $(-\infty, \infty)$
 range: $[-39.40, \infty)$

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.

