

Good morning!

If you are not sure that you have turned in your vocab words on Google Classroom, you will need to do so before the bell.

Have any questions about polynomials ready when class starts. There is a quiz.

Quiz!

Vocab Activity

Write your name in the middle of the hexagon.

Choose 6 terms from our list and write one along each side of the hexagon.

Root

Zero

X-intercept

Relative maximum

Relative minimum

End behavior

Point of inflection (turning point)

Leading coefficient

Degree

Odd

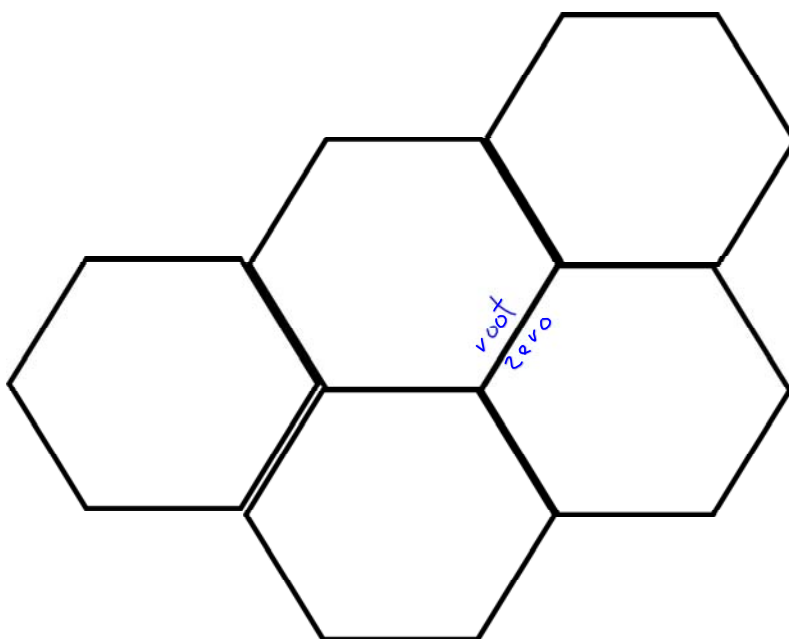
Even

Terms

Increasing

Decreasing

Multiplicity



5-4 Skills Practice

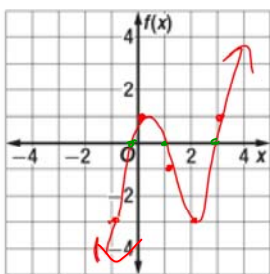
Analyzing Graphs of Polynomial Functions

Complete each of the following.

- a. Graph each function by making a table of values. ✓
- b. Determine the consecutive values of x between which each real zero is located.
- c. Estimate the x -coordinates at which the relative maxima and minima occur. ✓
- d. Describe the end behavior. ✓

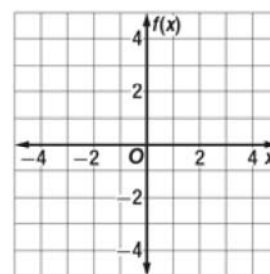
1. $f(x) = x^3 - 3x^2 + 1$

x	$f(x)$
-2	-19
-1	-3
0	1
1	-1
2	-3
3	1
4	17



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

x	$f(x)$
-3	
-2	
-1	
0	
1	
2	
3	



relative max between $(0,1)$ $(1,-1)$
 relative min between $(2,-3)$ $(3,1)$
 as $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$
 as $x \rightarrow +\infty$, $f(x) \rightarrow +\infty$
 Zeros between $[(-1,-3)(0,1)]$
 $[(0,1)(1,-1)]$
 $[(2,-3)(3,1)]$

5-4 Skills Practice

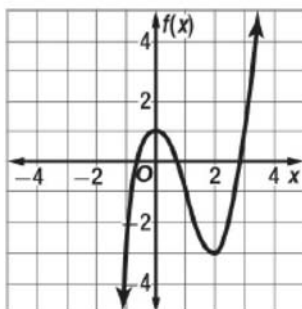
Analyzing Graphs of Polynomial Functions

Complete each of the following.

- Graph each function by making a table of values.
- Determine the consecutive values of x between which each real zero is located.
- Estimate the x -coordinates at which the relative maxima and minima occur.

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

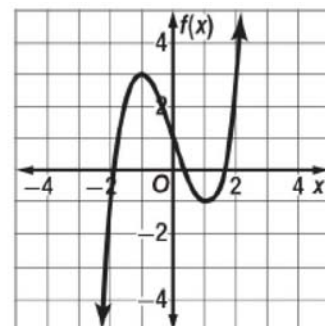
x	$f(x)$
-2	-19
-1	-3
0	1
1	-1
2	-3
3	1
4	17



zeros between -1 and 0, 0 and 1, and 2 and 3;
rel. max. at $x = 0$, rel. min. at $x = 2$

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

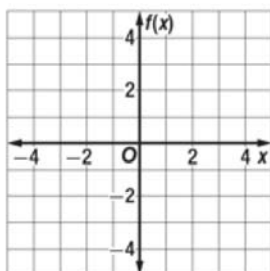
x	$f(x)$
-3	-17
-2	-1
-1	3
0	1
1	-1
2	3
3	19



zeros between -2 and -1, 0 and 1, and 1 and 2;
rel. max. at $x = -1$, rel. min. at $x = 1$

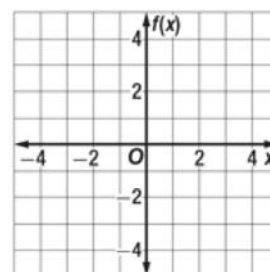
3. $f(x) = 2x^3 + 9x^2 + 12x + 2$

x	f(x)
-3	
-2	
-1	
0	
1	



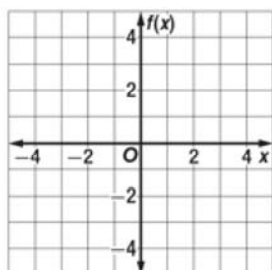
4. $f(x) = 2x^3 - 3x^2 + 2$

x	f(x)
-1	
0	
1	
2	
3	



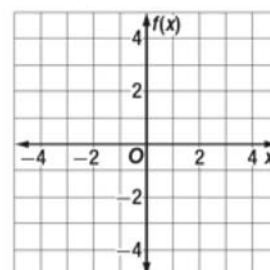
5. $f(x) = x^4 - 2x^2 - 2$

x	f(x)
-3	
-2	
-1	
0	
1	
2	
3	



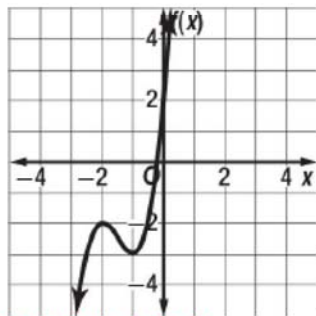
6. $f(x) = 0.5x^4 - 4x^2 + 4$

x	f(x)
-3	
-2	
-1	
0	
1	
2	
3	



3. $f(x) = 2x^3 + 9x^2 + 12x + 2$

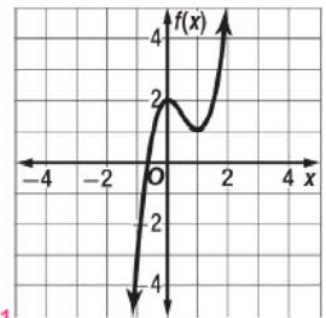
x	f(x)
-3	-7
-2	-2
-1	-3
0	2
1	25



zero between -1 and 0;
rel. max. at $x = -2$, rel. min. at $x = -1$

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

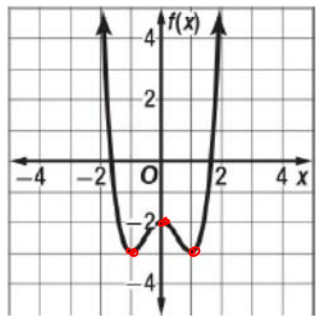
x	f(x)
-1	-3
0	2
1	1
2	6
3	29



zero between -1 and 0;
rel. max. at $x = 0$, rel. min. at $x = 1$

5. $f(x) = x^4 - 2x^2 - 2$

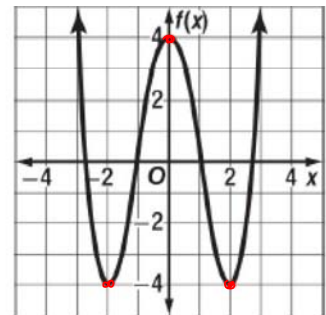
x	f(x)
-3	61
-2	6
-1	-3
0	-2
1	-3
2	6
3	61



zeros between -2 and -1, and 1 and 2;
rel. max. at $x = 0$,
min. at $x = -1$, and $x = 1$

6. $f(x) = 0.5x^4 - 4x^2 + 4$

x	f(x)
-3	8.5
-2	-4
-1	0.5
0	4
1	0.5
2	-4
3	8.5



zeros between -1 and -2, -2 and -3, 1 and 2, and 2 and 3;
rel. max. at $x = 0$, rel. min. at $x = -2$ and $x = 2$

Homework

5.4 Practice