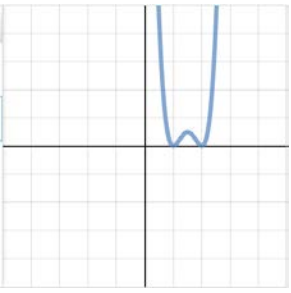
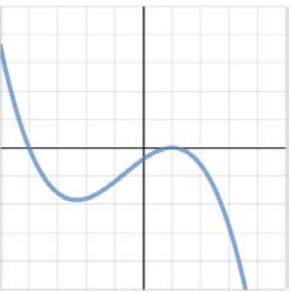


Homework Problem Set Sample Solutions

For each problem below, extend what you learned in this lesson to determine the zeros and end behavior.

	Graph or Equation	Zeros	End Behavior
1.	$y = -x(x+3)(x-2)(x+1)$	0, -3, 2, -1	Both sides are down.
2.		1, 2	Both sides are up.
3.	$y = x^2(x-1)$	0, 1	Right side is up and left side is down.
4.		1, -4	Right side is down and left side is up.
5.	$y = (x-1)(x+1)(x-2)(x+3)$	1, -1, 2, -3	Both sides are up.

6. A. Write an equation that has zeros at 2, -3 and 0 and the right side is going up.

$$y = x(x-2)(x+3)$$

B. Is it possible to have another equation with the same zeros and the right side going down? Explain your thinking.

Yes, you could have $y = -x(x-2)(x+3)$. As long as the overall sign of the leading coefficient is negative the right side will go down.

Spiral Review

7. Use exponent rules to simplify each expression. (Lesson 1 Homework Problem Set)

A. $3x^4 \cdot x^0 \cdot x^2 = 3x^6$

B. $y^{-5} \cdot y^{12} = y^7$

C. $(mn^2)^{-4} = \frac{1}{m^4 n^8}$

D. $1000x^0 = 1000$

E. $x^{-2} \cdot y^3 = \frac{y^3}{x^2}$

F. $\left(\frac{n^2}{m^{-3}}\right)^{-4} = \frac{m^{12}}{n^8}$

8. Simplify each expression. (Lesson 2 Homework Problem Set)

A. $-2(3x^3 + 4x - 7) + x(2x^2 - 3x + 1) =$
 $-4x^3 - 3x^2 - 7x + 14$

B. $\frac{1}{2}(4x^2 - 6x + 8) - 3(5x^2 + 7) =$
 $-13x^2 - 3x - 17$

C. $2x^3 - 8x^2 - 14x + 8 - (x^3 - 4x) - (2x) =$
 $x^3 - 8x^2 - 12x + 8$

D. $3x^3 + 4x^4 - (3x^4 + 4x^3) =$
 $x^4 - x^3$