

Pre-Calc AB Worksheet #58 : Answers

1.	Leading Term	End-Behavior		
	$-\frac{1}{16}x^7$	$\uparrow \downarrow$		
	Zeros	4	1	-3
	Multiplicities	2	3	2
	Y-intercept	(0,9)		

Put Graph on board.

2.	Leading Term	End-Behavior	
	$x^8$	$\uparrow \uparrow$	
	Zeros	-2	2
	Multiplicities	2	2
	Y-intercept	(0,256)	

Put Graph on board.

3a. Not a zero since  $f(-1) \neq 0$

3b. Yes a zero since  $f(-1) = 0$

$$f(x) = (x + 1)(x - \sqrt{3})(x + \sqrt{3})$$

3c. Yes a zero since  $f(-1) = 0$

$$f(x) = (x + 1)(2x + 7)(x + 6)$$

3d. Not a zero since  $f(-1) \neq 0$

4a.  $x = -1 \pm \sqrt{2}$

4b.  $x = -3i, \frac{1}{2} \pm \frac{\sqrt{3}}{2}i$

5a. (a)  $\pm 1, \pm 2, \pm 5, \pm 10$

(b) Eliminate values less than -2, greater than 5

(c)  $x = -2, -1, 5$

(d)  $P(x) = (x + 2)(x + 1)(x - 5)$

5b. (a)  $\pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 12, \pm \frac{1}{2}, \pm \frac{3}{2}, \pm \frac{1}{3}, \pm \frac{2}{3}, \pm \frac{4}{3}, \pm \frac{1}{6}$

(b) Eliminate values less than -4, greater than  $\frac{3}{2}$

(c)  $x = -4, -\frac{1}{3}, \frac{3}{2}$

(d)  $P(x) = (x + 4)(3x + 1)(2x - 3)$

6a. 3

6b. 1, 2 or 3

6c. 2

6d. If  $b^2 - 4ac > 0$  then two more distinct real zeros.

If  $b^2 - 4ac = 0$ , then one more distinct real zero.

If  $b^2 - 4ac < 0$ , then two nonreal complex zeros.