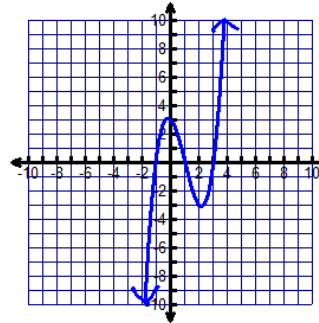


**SM3H 1.5 ODD answer key**

1.

Zeros	Multiplicity	Touch/Cross
-1	1	Cross
1	1	Cross
3	1	Cross

$$\lim_{x \rightarrow \infty} f(x) = \infty \quad \lim_{x \rightarrow -\infty} f(x) = -\infty$$

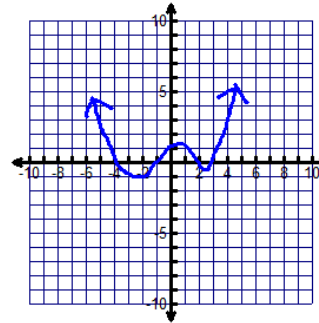


Degree: 3

3.

Zeros	Multiplicity	Touch/Cross
-4	1	Cross
-1	1	Cross
2	1	Cross
3	1	Cross

$$\lim_{x \rightarrow \infty} f(x) = \infty \quad \lim_{x \rightarrow -\infty} f(x) = \infty$$

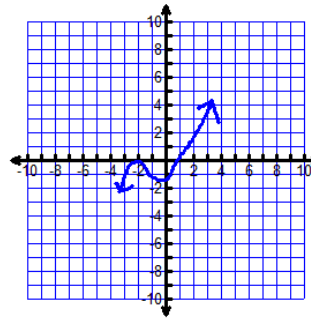


Degree: 4

5.

Zeros	Multiplicity	Touch/Cross
-2	2	Touch
1	3	Cross

$$\lim_{x \rightarrow \infty} f(x) = \infty \quad \lim_{x \rightarrow -\infty} f(x) = -\infty$$



Degree: 5

7. f

9. a

11. b

13.

$$\lim_{x \rightarrow \infty} f(x) = \infty \quad \lim_{x \rightarrow -\infty} f(x) = \infty$$

Zeros	Multiplicity	Touch/Cross
-1	Odd 3 or 1 or 1	Cross
1	Even 2 or 2 or 4	Touch
3	Odd 1 or 3 or 1	Cross

15. a, b (old version: b)

17.  $(3y - 4)(3y + 4)$

19.  $(4z + 3)(16z^2 - 12z + 9)$

21.  $(3k - 4)(k - 5)$

23.  $5(5a - 9)(a + 3)$

25.  $2(2x - 1)(4x^2 + 2x + 1)$

27.  $\frac{2 \pm 2\sqrt{7}}{3}$