



Polynomials End Behavior Name

Determine whether the leading coefficient, a_n , is positive or negative and whether the degree of the polynomial is odd or even. Sketch the snowman's arms to represent the end behavior of each polynomial. Distinguish the end behavior: $f(x) \rightarrow as x \rightarrow \pm \infty$.

Example:

an

degree
odd or even

$$f(x) = x^{2}$$

$$f(x) \to +\infty \text{ as } x \to -\infty$$

$$f(x) \to +\infty \text{ as } x \to +\infty$$

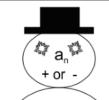




$$f(x) = -x^{3}$$

$$f(x) \rightarrow as x \rightarrow \infty$$

$$f(x) \rightarrow as x \rightarrow +\infty$$



odd or even $f(x) = -3x^{2}$ $f(x) \rightarrow as x \rightarrow \infty$

f(x)→___ as x→+∞

degree



degree

$$f(x) = \frac{1}{4} x^{3}$$

$$f(x) \rightarrow \underline{\quad} \text{as } x \rightarrow -\infty$$

$$f(x) \rightarrow \underline{\quad} \text{as } x \rightarrow +\infty$$



degree

$$f(x) = -x^{7} + x$$

$$f(x) \rightarrow as x \rightarrow \infty$$

$$f(x) \rightarrow as x \rightarrow \infty$$



degree odd or even

$$f(x) = -x^{2} + \frac{1}{2}x^{5}$$

$$f(x) \rightarrow \underline{\qquad} as x \rightarrow -\infty$$

$$f(x) \rightarrow \underline{\qquad} as x \rightarrow +\infty$$



degree odd or even

$$f(x) = 4 - x$$

$$f(x) \rightarrow \underline{\quad} \text{as } x \rightarrow -\infty$$

$$f(x) \rightarrow \underline{\quad} \text{as } x \rightarrow +\infty$$



degree odd or even

$$f(x) = \frac{2}{3} x^3 + x^6$$

$$f(x) \rightarrow as x \rightarrow \infty$$

$$f(x) \rightarrow as x \rightarrow \infty$$

degree

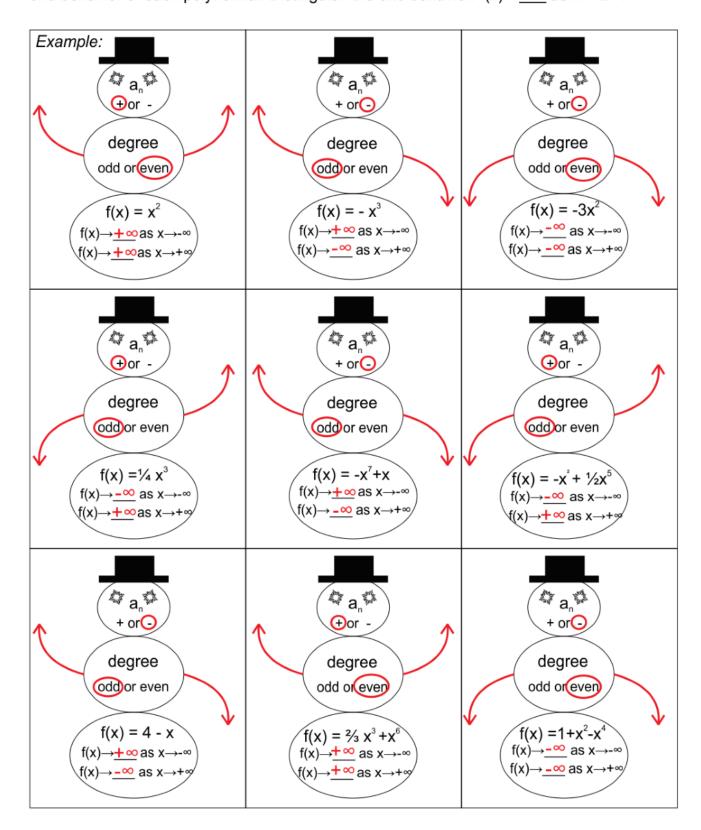
$$f(x) = 1 + x^{2} - x^{4}$$

$$f(x) \rightarrow as x \rightarrow \infty$$

$$f(x) \rightarrow as x \rightarrow \infty$$

Polynomials End Behavior Name_ Answer Key

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