[19-09-02-T11]

Increasing/decreasing functions

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[1] Consider the function defined by $f(x) = x^n$, $x \in \mathbb{R}$, $n \in \{\ldots, -6, -4, -2\}$.

(a) Sketch the graph of f.

(b) State the domain and range of f.

(c) If f appears to increasing (decreasing) on an interval, say so and write the interval(s) on which this behavior occurs.

(d) Prove that your answers to (b) are correct.

[2] The function $y = x^5$ is an odd function. Prove this.

[3] Which of the functions $y = x^2$, $y = x^4$, $y = x^6$ grows the fastest on the interval $[0, 1)$? On the interval $[1, \infty +)$?