

MP PERSEVERANCE State the degree and leading coefficient of each polynomial in one variable. If it is not a polynomial in one variable, explain why.

15. $8x^5 - 12x^6 + 14x^3 - 9$

16. $-12 - 8x^2 + 5x - 21x^7$

17. $15x - 4x^3 + 3x^2 - 5x^4$

18. $13b^3 - 9b + 3b^5 - 18$

19. $(d + 5)(3d - 4)$

20. $(5 - 2y)(4 + 3y)$

21. $6x^5 - 5x^4 + 2x^9 - 3x^2$

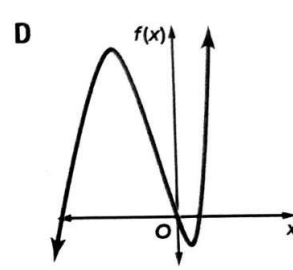
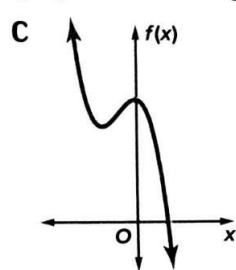
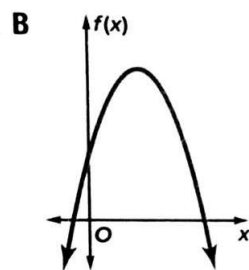
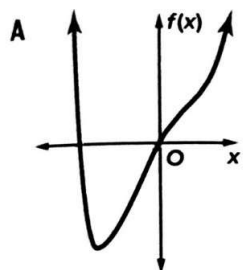
22. $7x^4 + 3x^7 - 2x^8 + 7$

15) Even $a < 0$ Down to Right Down to left

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

17) Even $a < 0$ Same as #15

Use the degree and end behavior to match each polynomial to its graph.



47. $f(x) = x^3 + 3x^2 - 4x$ **D**

48. $f(x) = -2x^2 + 8x + 5$ **B**

49. $f(x) = x^4 - 3x^2 + 6x$ **A**

50. $f(x) = -4x^3 - 4x^2 + 8$ **C**

Use a graphing calculator to estimate the x -coordinates at which the maxima and minima of each function occur. Round to the nearest hundredth.

19. $f(x) = x^3 + 3x^2 - 6x - 6$

20. $f(x) = -2x^3 + 4x^2 - 5x + 8$

21. $f(x) = -2x^4 + 5x^3 - 4x^2 + 3x - 7$

22. $f(x) = x^5 - 4x^3 + 3x^2 - 8x - 6$

19) max $(-2.732, 12.392)$ min $(.732, -8.392)$

Zeros $(-4.105, 0)$, $(-.777, 0)$, $(1.882, 0)$

Int $(-\infty, -2.732) \cup (.732, \infty)$

Dec $(-2.732, .732)$

20) zero $(1.829, 0)$ No min/max

Dec $(-\infty, \infty)$

21) max $(1.337, -4.580)$

Int $(-\infty, 1.337)$ Dec $(1.337, \infty)$

22) max $(-1.871, 22.741)$ min $(1.518, -17.162)$

Int $(-\infty, -1.871) \cup (1.518, \infty)$ Dec $(-1.871, 1.518)$

Zeros: $(-2.475, 0)$ $(-.555, 0)$ $(2.202, 0)$