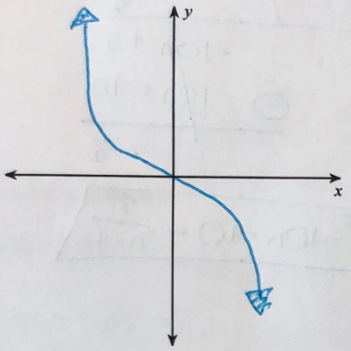
Sketch the basic graph shape for each function. Then state the end behavior.

16) $f(x) = -8x^{23} + x^{17} - 4x^6 + 8x^2$

as $x \to +\infty$, $y \to$ $-\infty$ (RIGHT, DOWN)

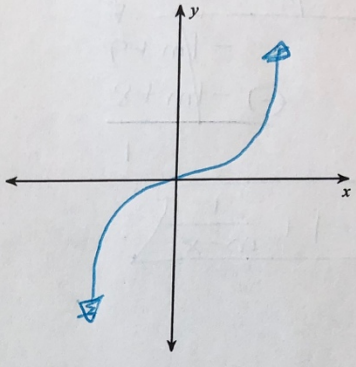
as $x \to -\infty$, $y \to$ $+\infty$ (LEFT, UP)



17) $f(x) = 9x^5 + x^2 - 4 + 9$

as $x \to +\infty$, $y \to$ $+\infty$ (RIGHT, UP)

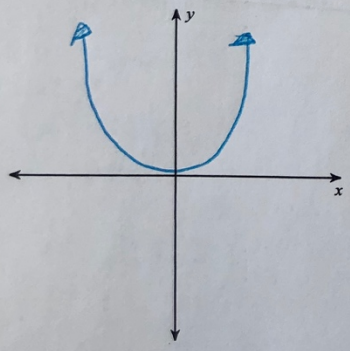
as $x \to -\infty$, $y \to$ $-\infty$ (LEFT, DOWN)



18) $f(x) = x^{10} - 8x^7 - 5x^6 + 4x^3 - 1$

as $x \to +\infty$, $y \to$ $+\infty$

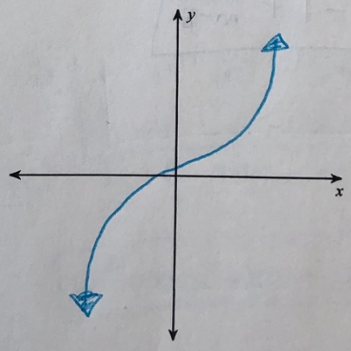
as $x \to -\infty$, $y \to$ $+\infty$



19) $f(x) = 2x^{17} + 8x^{10} - 12x^6 + 14x$

as $x \to +\infty$, $y \to$ $+\infty$

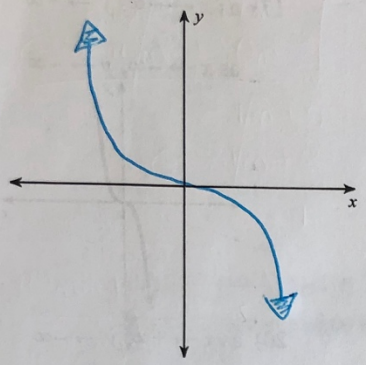
as $x \to -\infty$, $y \to$ $-\infty$



20) $f(x) = -x^{15} + x^{12} - 18$

as $x \to +\infty$, $y \to$ $-\infty$

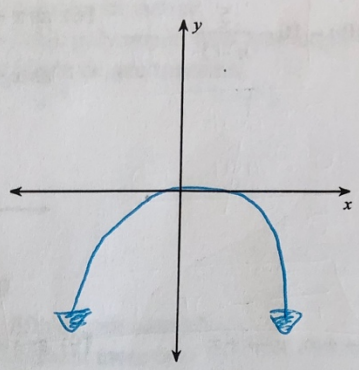
as $x \to -\infty$, $y \to$ $+\infty$



21) $f(x) = -6x^{14} - 7x^{11} + 6x^{8} + 4x^{2}$

as $x \to +\infty$, $y \to$ $-\infty$

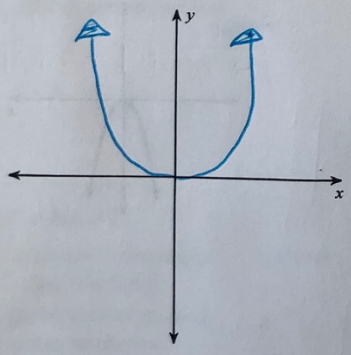
as $x \to -\infty$, $y \to$ $-\infty$



22) $f(x) = 13x^{16} + 7x^{12} - 5x^{5} - 2x^{2}$

as $x \to +\infty$, $y \to$ $+\infty$

as $x \to -\infty$, $y \to$ $+\infty$



23) $f(x) = -x^{8} + 3x^{2} + 6x$

as $x \to +\infty$, $y \to$ $-\infty$

as $x \to -\infty$, $y \to$ $-\infty$