(1) $y=-7 x^{4}+3 x^{3}-2 x^{2}+x-9$
(2) $y=5 x^{3}+2 x^{2}+x+8$
(3) $y=-3 x^{2}+4 x^{4}-5 x^{3}-7 x^{5}-2 x+1$
(4) $y=9 x^{2}-3 x^{3}+2 x-1+4 x^{6}$
end behavior

$$
f(x) \xrightarrow[\text { approades }]{\longrightarrow} \text {, as } x \rightarrow \text { approaches }
$$

EXAMPLE Graphs of Polynomial Functions
4 For each graph,

- describe the end behavior,
- determine whether it represents an odd-degree or an even-degree polynomial function, and
- state the number of real zeros.
a.

end betravión

$$
\begin{aligned}
& \text { end behravion } \\
& f(x) \rightarrow-\infty \text {, as } x \rightarrow \infty \text { (right sibleanow) } \\
& \rho \text { (lift sidelarrow) }
\end{aligned}
$$

$$
\begin{aligned}
& \begin{array}{l}
f(x) \rightarrow-\infty \text {, as } x \rightarrow \infty \text { (sig } x+\text { idelarow) } \\
f(x) \rightarrow-\infty \text {, as } x \rightarrow-\infty \text { (le } \\
\text { even }
\end{array} \\
& f(x) \rightarrow-\infty \text {, as } x \rightarrow-\infty \text { (leftsidelarow) } \\
& \text { even }
\end{aligned}
$$

b.


$$
\begin{aligned}
& f(x) \rightarrow+\infty \text {, as } x \rightarrow \infty \\
& f(x) \rightarrow \infty \text {, as } x \rightarrow-\infty \\
& \text { even }
\end{aligned}
$$


p. 336-338
$12-23,28-32,34-35,49-$ 50, 57-58

