

Name : \_\_\_\_\_

Score : \_\_\_\_\_

## Evaluating and Graphing Polynomial Functions

Use direct substitution to evaluate the polynomial function for the given value of  $x$ .

①  $f(x) = x^4 - 2x + 7, x = 1$

②  $f(x) = x^2 - x^5 + 1, x = -1$

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Use synthetic substitution to evaluate the polynomial function for the given value of  $x$ .

③  $f(x) = 2x^3 - 2x^2 + 6x, x = 5$

④  $f(x) = x^3 - x^2 + 12x + 15, x = -1$

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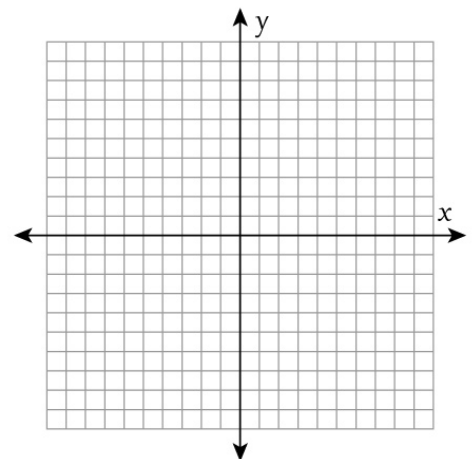
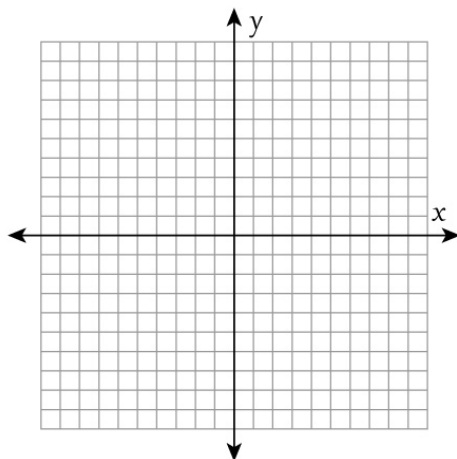
⑤ Graph each polynomial function and then describe the end behavior of the graph.

⑤ (a)

$f(x) = -x^3 + 1$		
End Behavior	As $x \rightarrow -\infty$ $f(x) \rightarrow$ ___	As $x \rightarrow \infty$ $f(x) \rightarrow$ ___

⑤ (b)

$f(x) = x^4 - 2x - 1$		
End Behavior	As $x \rightarrow -\infty$ $f(x) \rightarrow$ ___	As $x \rightarrow \infty$ $f(x) \rightarrow$ ___



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# Evaluating and Graphing Polynomial Functions

## Answers

①  $f(x) = x^4 - 2x + 7, x = 1$

6

②  $f(x) = x^2 - x^5 + 1, x = -1$

3

③  $f(x) = 2x^3 - 2x^2 + 6x, x = 5$

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④  $f(x) = x^3 - x^2 + 12x + 15, x = -1$

1

⑤

⑤

$f(x) = -x^3 + 1$		
End Behavior	As $x \rightarrow -\infty$ $f(x) \rightarrow \infty$	As $x \rightarrow \infty$ $f(x) \rightarrow -\infty$

⑤

$f(x) = x^4 - 2x - 1$		
End Behavior	As $x \rightarrow -\infty$ $f(x) \rightarrow \infty$	As $x \rightarrow \infty$ $f(x) \rightarrow \infty$

