

Name:

Period:

Date:

### Practice Worksheet: End Behavior & Graphing Polynomials

WITHOUT graphing, identify the end behavior of the polynomial function.

<p>1] <math>y = 2x^5 + 7x^2 + 4x</math></p> <p>Degree: <u>odd</u> Sign of LC: <u>pos</u></p> <p>as <math>x \rightarrow -\infty, y \rightarrow -\infty</math></p> <p>as <math>x \rightarrow \infty, y \rightarrow \infty</math></p>	<p>2] <math>y = -5x</math></p> <p>Degree: <u>odd</u> Sign of LC: <u>neg</u></p> <p>as <math>x \rightarrow -\infty, y \rightarrow \infty</math></p> <p>as <math>x \rightarrow \infty, y \rightarrow -\infty</math></p>	<p>3] <math>y = 12x^4 - 2x + 5</math></p> <p>Degree: <u>even</u> Sign of LC: <u>pos</u></p> <p>as <math>x \rightarrow -\infty, y \rightarrow \infty</math></p> <p>as <math>x \rightarrow \infty, y \rightarrow \infty</math></p>
<p>4] <math>y = 6 - 2x - 4x^2 + 5x^3</math></p> <p><u><math>5x^3 - 4x^2 - 2x + 6</math></u></p> <p>Standard Form:</p> <p>Degree: <u>odd</u> Sign of LC: <u>pos</u></p> <p>as <math>x \rightarrow -\infty, y \rightarrow -\infty</math></p> <p>as <math>x \rightarrow \infty, y \rightarrow \infty</math></p>	<p>5] <math>y = 1 + 2x^6 - 4x^2 - 2x^6</math></p> <p><u><math>-4x^2 + 1</math></u></p> <p>Standard Form:</p> <p>Degree: <u>even</u> Sign of LC: <u>neg</u></p> <p>as <math>x \rightarrow -\infty, y \rightarrow -\infty</math></p> <p>as <math>x \rightarrow \infty, y \rightarrow -\infty</math></p>	<p>6] <math>y = 4x + 2 - 5x^6</math></p> <p><u><math>-5x^6 + 4x + 2</math></u></p> <p>Standard Form:</p> <p>Degree: <u>even</u> Sign of LC: <u>neg</u></p> <p>as <math>x \rightarrow -\infty, y \rightarrow -\infty</math></p> <p>as <math>x \rightarrow \infty, y \rightarrow -\infty</math></p>

Next use graphing technology to sketch a graph of the polynomial to confirm your answer. Be as detailed as possible

1.



2.

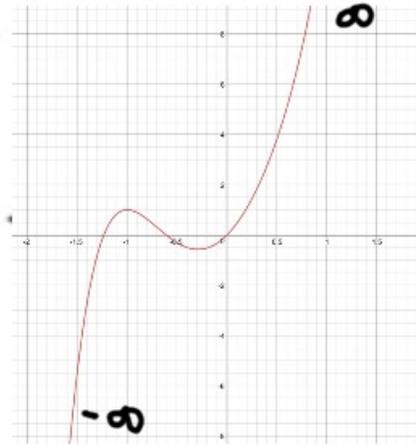


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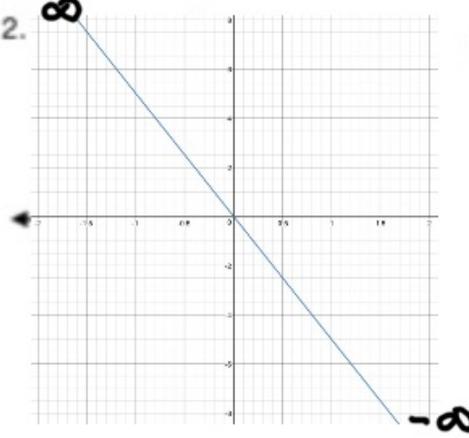


Next use graphing technology to sketch a graph of the polynomial to confirm your answer. Be as detailed as possible

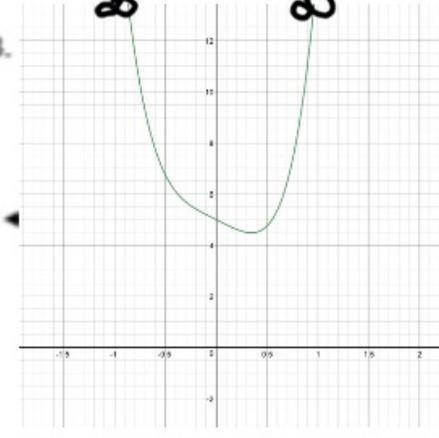
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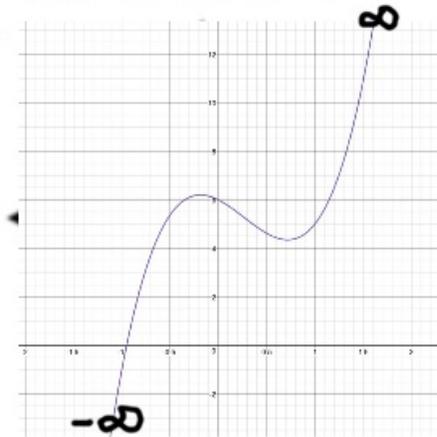
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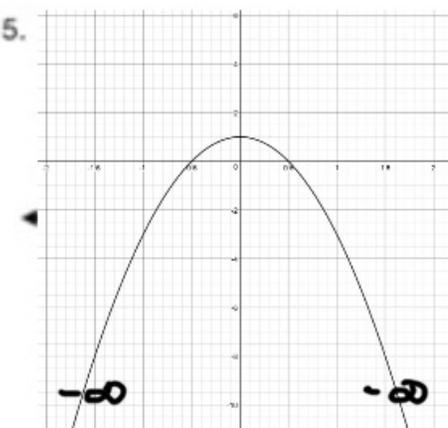
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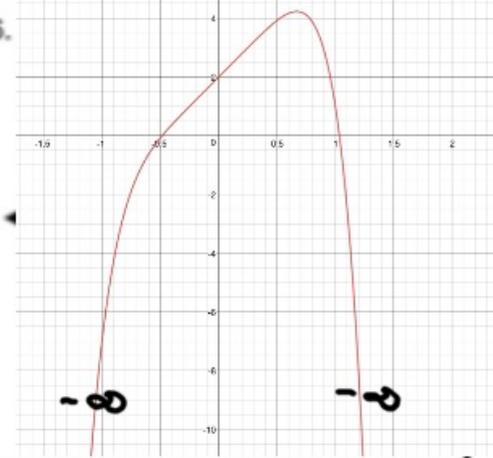
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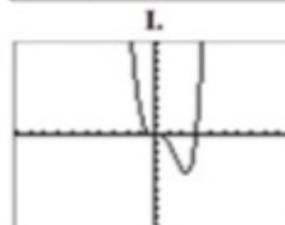
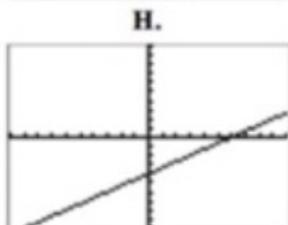
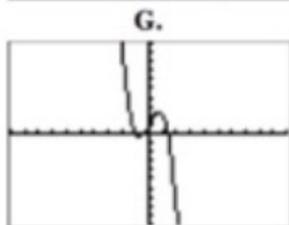
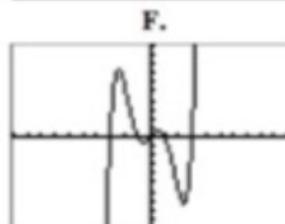
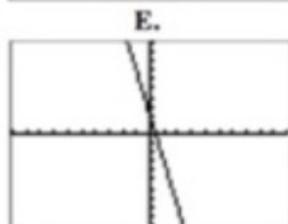
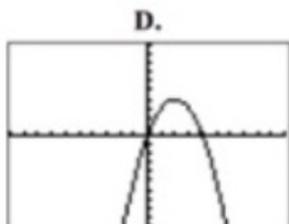
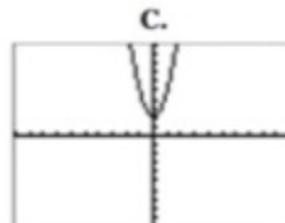
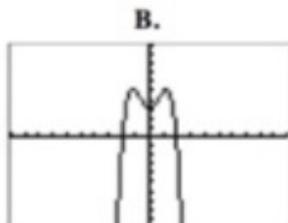
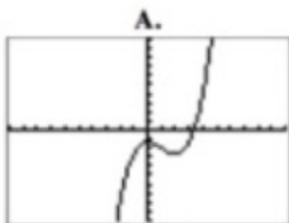
5.



6.



Match the polynomial function with its graph WITHOUT using a graphing calculator. Think about how the degree of the polynomial affects the shape of the graph.



D 7]  $y = -x^2 + 4x$

G 8]  $y = -2x^3 + 3x + 1$

A 9]  $y = \frac{1}{3}x^3 - x^2 - \frac{4}{3}$

B 10]  $y = -x^4 + 3x^2 + 3$

C 11]  $y = 3x^2 + 2$

H 12]  $y = \frac{2}{3}x - 4$

I 13]  $y = \frac{1}{2}x^4 - \frac{3}{2}x^3$

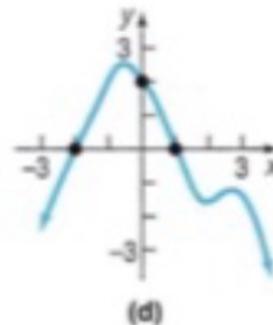
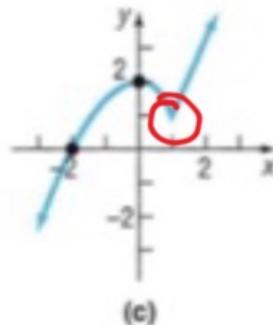
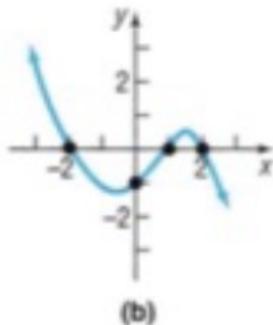
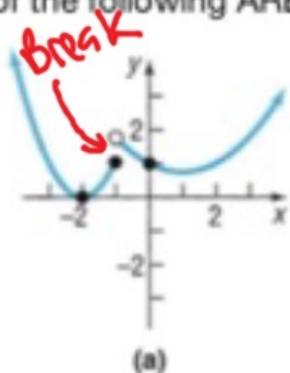
F 14]  $y = \frac{1}{5}x^5 - 2x^3 + \frac{9}{5}x$

E 15]  $y = -5x + 2$

Which of the following ARE NOT GRAPHS OF POLYNOMIAL FUNCTIONS? Why do you think so?



Which of the following ARE NOT GRAPHS OF POLYNOMIAL FUNCTIONS? Why do you think so?



Answer and Explanations: (a) because it is not continuous.

(c) because it has a sharp turn.

