

homework: 3.8

Review Next time

Test the following time

Nov 6-11:27 AM



Nov 14-9:00 AM

3.8 I Know, What do you know?

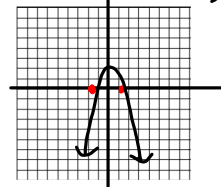
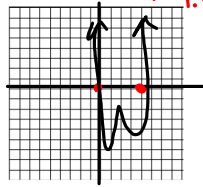
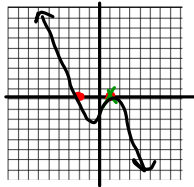
A Practice Understanding Task

Use the information provided to graph and write out the polynomial function in factored form.



http://www.flickr.com/photos/chrisbrenschmidt/18319558

Degree of poly	Given roots (you may have to determine others):	Leading coefficient	Equation (in factored and standard form):
1	3	-2	$-2(x+2)(x-1)$
2	$2-i, -2+i, 4, 0$	1	$(x-2+i)(x-2-i)(x-4)$
3	$2, -\sqrt{2}+\sqrt{2}$	-1	$-1(x+\sqrt{2})(x-\sqrt{2})$



Standard Equations

① $-2(x+2)(x-1)(x-1)$
 $(x+2)(x^2-2x+1)$
 x^3-2x^2+x
 $-2x^3+4x^2-2x$
 $-2x^3+6x^2-4x$

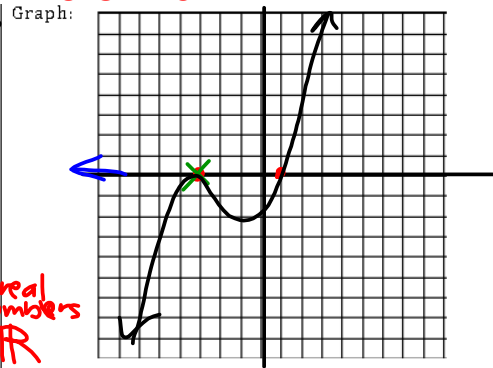
② $x(x-4)(x-2+i)(x-2-i)$
 $(x^2-4x)(x^2-4x+5)$
 $x^4-4x^3+5x^2-4x^2+20x-20x$
 $x^4-8x^3+2x^2-20x$

③ $-1(x+\sqrt{2})(x-\sqrt{2})$
 x^2-2
 $-x^2+2$

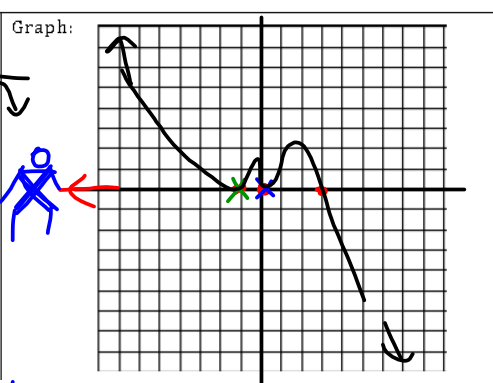
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Starter: Lesson 3.8 4-6

4. Function: $f(x) = 0(x-1)(x+3)^2 \sim x^3$
 End behavior: $as x \rightarrow -\infty, f(x) \rightarrow -\infty$
 $as x \rightarrow \infty, f(x) \rightarrow \infty$
 Roots (with multiplicity): $1, m:1; -3, m:2$
 Value of leading co-efficient: 2
 Domain: $x \rightarrow (-\infty, \infty)$ or all real numbers
 Range: All Real numbers \mathbb{R}



5. Function: $-(x-3)(x+1)^2 x^2$
 End behavior: $\sim -x^5$
 $as x \rightarrow -\infty, f(x) \rightarrow \infty$
 $as x \rightarrow \infty, f(x) \rightarrow -\infty$
 Roots (with multiplicity): $(3,0) m:1; (-1,0) m:2; (0,0) m:2$
 Value of leading co-efficient: -1
 Domain: \mathbb{R} or $(-\infty, \infty)$
 Range: up & down \mathbb{R} : all real numbers



Nov 10-7:34 AM

last graph from 3.8

<p>6. Function: $1(x+2)^2(x-2)^2$</p> <p>End behavior: $\text{as } x \rightarrow -\infty, f(x) \rightarrow \infty$ $\text{as } x \rightarrow \infty, f(x) \rightarrow \infty$</p> <p>Roots (with multiplicity): $-2, m:2$ $2, m:2$</p> <p>Value of leading co-efficient: 1</p> <p>Domain: $(-\infty, \infty) \mathbb{R}$</p> <p>Range: $[0, \infty)$</p> <p>Other: $f(-2) = 0$ $f(2) = 0$</p>	<p>Graph:</p>
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Without using technology, sketch the graph of the polynomial function described. The term "imaginary roots" means complex zeros.

7. A cubic function with a leading coefficient of -2, with two negative zeros and one positive.
 $-2x^3$
8. A quartic function with a leading coefficient of 1, with two negative zeros and one positive double zero.
 $1x^4$
9. A cubic function with a leading coefficient of -3, with an imaginary root and one positive double root.
 $-3x^3$

no touch
IMPOSSIBLE
10. A quartic function with a leading coefficient of -2, with two negative zeros and one positive double root.
 $-2x^4$

Find all factors and sketch the graph of the polynomial functions.

11. $f(x) = x^3 - x^2$

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Set

Topic: graphing polynomial functions. Complete the information below using the graph

10.	<p>Function:</p> <p>End behavior: $as\ x \rightarrow -\infty, f(x) \rightarrow \underline{\hspace{1cm}}$ $as\ x \rightarrow \infty, f(x) \rightarrow \underline{\hspace{1cm}}$</p> <p>Roots (with multiplicity):</p> <p>Value of leading co-efficient:</p> <p>Domain:</p> <p>Range:</p>	
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Name _____ Polynomial Functions | 3.8

Without using technology, sketch the graph of the polynomial function described. The term "imaginary roots" means complex zeros. **look for any situations that are impossible!*

10. A cubic function with a leading coefficient of -2, with one positive zero.

11. A quartic function with a leading coefficient of 1, with two double zeros.



12. A cubic function with a leading coefficient of -3, with one positive triple root.

13. A quartic function with a leading coefficient of -2, with two negative zeros and two complex roots.

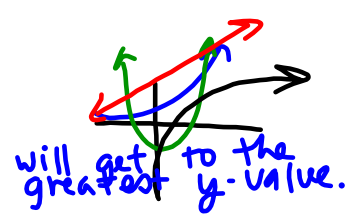
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Go

Topic: end behavior

Circle the expression that has the greatest value of $f(x)$ as $x \rightarrow \infty$.

14. 2^x $x^2 - 2x + 10$ $x + 5$ $\log x$
15. $(\frac{1}{2})^x$ $x^2 - 2x + 10$ $x^5 - 4x^2$ $3\sqrt{x}$
16. $3 \cdot 2^x$ $x^3 + x^2 - 4$ $2(3^x)$ x^{10}



exponential is the steepest, so

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