

Polynomial Functions (3.1) p114 day 1

Quiz 3

Polynomial Functions (3.1) p114 day 1

ex1: sort these functions

polynomials

$y = \frac{1}{2}x + 6$

$g(x) = 2x^3 + 3x^2 - 4x - 1$

$y = -2x^4 + 3x^2 + 5x$

$f(x) = 3x^2$

$c(x) = 9$

x^{-2}

$= \frac{1}{x^2}$

not polynomials

$h(x) = |x - 4|$

$g(x) = \sqrt{x} - 4$

$y = 2^x + 3$

$f(x) = \frac{1}{x - 4}$

$f(x) = \sin(x)$

$y = x^{-1}$
 $y = \frac{1}{x}$

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polynomials

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$y = -2x^4 + 3x^2 + 5x$

$y = \frac{1}{2}x + 6$

C

not polynomials

$f(x) = \sin(x)$

$f(x) = \frac{1}{x - 4}$

$g(x) = \sqrt{x} - 4$

$h(x) = |x - 4|$

$y = 2^x + 3$

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A polynomial function is made up of terms with whole number exponents.

ex2: Graph the following.

$y = x^2 - 3x + 5$

$y = x^3 - 2x + 1$

$y = x^4 - 3x^3 + 2x - 3$

What patterns do you notice?

Predict the look of

$y = x^5$

$y = x^1$

$y = x^0$

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ex3: State the end behaviour for

$y = x^3 - 2x + 1$

$y = x^4 - 3x^3 + 2x - 3$

left $-\infty, \infty$

right ∞, ∞

$y = x^2 - 3x + 5$

$y = -x^4$

$-\infty, -\infty$

End behaviour is the y-values at far ends of x-axis

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ex4: Match the function with the graph.

I $p(x) = -2x^3 + 5x^2 - x$

II $f(x) = -x^4 + 10x^2 + 5x - 4$

III $h(x) = x^4 + 4x^3 - x^2 - 16x - 12$

IV $g(x) = x^3 + x^2 - 5x + 3$

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A chart can help to organize things

leading term	name	degree	#roots	end behaviour
$y = c$	constant	0	0	c, c
$y = x$	linear	1	1	$-\infty, \infty$
$y = x^2$	quadratic	2	0, 1, 2	∞, ∞
* $y = x^3$	cubic	3	1, 2, 3	$-\infty, \infty$
$y = x^4$	quartic	4	0-4	∞, ∞
$y = x^5$	quintic	5	1-5	$-\infty, \infty$

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HW: p114 #6, 7