Торіс	Rational Function Features	Square Root Function Features	Exponential Function Features	Logarithmic Function Features
CCSS Stand.	• F-IF.7d	• F-IF.7b	• F-IF.7e	• F-IF.7e
DOK 1	Identify the function's vertical	Find the domain and x-	Find the asymptote and y-	Find the y-intercept of the
Example	asymptote and its solution.	intercept of the square root	intercept of the exponential	logarithmic function.
	5	function.	function.	
	$y = \frac{5}{x+8} + -3$	$y = -5\sqrt{x+7} + 3$	$y = -2 \cdot 3^{(x+1)} + 4$	$y = -6 \log_5(x - 4) + 3$
DOK 2	Using the integers -9 to 9, at	Using the integers -9 to 9, at	Use the digits 1 to 9, at most	Using the integers -9 to 9, at
Example	most one time each, fill in the	most one time each, fill in the	two times each, fill in the	most one time each, fill in the
	boxes to create a rational	boxes to create a square root	boxes to create an exponential	boxes and create a logarithmic
	function, its vertical	function, its domain, and the	growth function with its	functions with the
	asymptote,	x-intercept.	asymptote and y-intercept.	corresponding y-intercept.
	and its $y = \frac{1}{x + 1} + \frac{1}{x + 1}$ solution.	$y = \sqrt{x + \boxed{x + \frac{x + \boxed{x + \frac{x + x + \frac{x + x + x + x + x + x + x + x + x + x +$	$y = \Box \cdot \Box^{(x + \Box)} + \Box$	$y = \left[\log_{\left[\left(x - \right] \right)} + \right]$
	vertical $x = $	domain: $x \ge $	y-intercept: $(0, \square)$	y-intercept: (0, 🗌)
	asymptote:	x-intercept: (\square, \square)	asymptote: $y = $	
DOK 3	Using the integers -9 to 9, at	Using the integers -9 to 9, at	Use the digits 1 to 9, at most	Using the integers -9 to 9, at
Example	most one time each, fill in the	most one time each, fill in the	two times each, fill in the	most one time each, fill in the
	boxes to create a rational	boxes to create a square root	boxes to create an exponential	boxes to create a function with
	function, its vertical	function, its domain, and the	decay function with its	the greatest possible y-
	asymptote, and the greatest	greatest possible x-intercept.	asymptote and greatest	intercept.
	possible		possible y-intercept.	1
	solution. $y = \frac{1}{x + 1} + \frac{1}{x + 1}$	$y = \Box \sqrt{x} + \Box + \Box$	(x + [])	$y = \left[\log_{\left[\left(x - \left[\right] \right) \right]} + \left[\right] \right]$
	solution: $x = $	domain: $x \ge $	$y = \square \cdot \square^{(x + \square)} + \square$	y-intercept: (0, 🗌)
	vertical $x =$ asymptote:	x-intercept: $(_, _)$	y-intercept: (0, 🗌)	
			asymptote: $y = $	

Depth of Knowledge Matrix – Algebra 2 (Integrated 3)

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Topic	Polynomial Function Features	Multiplying Complex Numbers	Trinomial Function Features	Equations of Circles
CCSS Stand.	• F-IF.7c	• N-CN.2	• F-IF.5	• G-GPE.1
DOK 1 Example	Find the roots of the function.	Multiply the binomials.	Find the range and roots of the function.	Determine if the point is on the circle.
	$y = x^3 - 2x^2 + 4x - 5$	(3+4i)(2+3i)	$y = -4x^2 + 9x - 2$	$(x-4)^2 + (y-(-3))^2 = 6^2$
DOK 2	Using the integers -9 to 9, at	Using the integers -9 to 9 at	Using the integers -9 to 9, at	Using the integers -9 to 9, at
Example	most one time each, fill in the	most one time each, fill in the	most one time each, fill in the	most one time each, fill in the
	boxes to create a polynomial	boxes twice: once to make a	boxes to create a function with	boxes to create a circle and a
	function with matching roots.	positive real number product	the corresponding range and	point on the circle.
		and once to make a negative	roots.	
	$y = \boxed{x^3} + \boxed{x^2} + \boxed{x} + \boxed{x}$	real number product. You may reuse all the integers for each		$(x- \boxed{)^2} + (y- \boxed{)^2} = \boxed{^2}$
	roots: $x = $, $x = $, $x = $	product.	$y = \boxed{x^2} + \boxed{x} + \boxed{x}$ roots: $x = \boxed{x}$, $x = \boxed{x}$	Point on circle: (\Box, \Box)
		(+ i)(+ i)	range: $y \ge $	
DOK 3	Using the integers -9 to 9, at	Using the integers -9 to 9 at	Using the integers -9 to 9, at	Using the integers -9 to 9, at
Example	most one time each, fill in the	most one time each, fill in the	most one time each, fill in the	most one time each, fill in the
	boxes to create a polynomial function with matching roots	boxes to make a real number product with the greatest	boxes to create a function with the corresponding range and	boxes to create a circle and a point on the circle with the
	that are as close together as	value.	roots that are as close	point being as close to the
	possible.		together as possible.	origin as possible.
		$(\square+\squarei)(\square+\squarei)$		
	$y = \boxed{x^3 + \boxed{x^2 + \boxed{x} + \boxed{x}}}$		$y = \boxed{x^2 + \boxed{x + }}$	$(x-[])^2+(y-[])^2=[]^2$
	roots: $x = $, $x = $, $x = $		roots: $x = $, $x = $ range: $y \ge $	Point on circle: (\Box, \Box)

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