

## SOL Alignment and Levels of Cognitive Demand Algebra II

### STANDARD AII.7

The student will investigate and analyze functions algebraically and graphically. Key concepts include

- a) domain and range, including limited and discontinuous domains and ranges;
- b) zeros;
- c)  $x$ - and  $y$ -intercepts;
- d) intervals in which a function is increasing or decreasing;
- e) asymptotes;
- f) end behavior;

Graphing calculators will be used as a tool to assist in investigation of functions.

- Identify the domain, range, zeros, and intercepts of a function presented algebraically or graphically.
- Describe restricted/discontinuous domains and ranges.
- Given the graph of a function, identify intervals on which the function is increasing and decreasing.
- Find the equations of vertical and horizontal asymptotes of functions.
- Describe the end behavior of a function.

Problem:	Alignment to standard: Yes/no; SOL bullet	Level of cognitive demand: Low/medium/not aligned	Answer and EKS Correlation:
1	Yes; b	Low	7 ; bullet 1
2	No		Has a slant asymptote
3	Yes; c	Low	$(-1,0)$ , $(0,5)$ , $(6.5,0)$ ; bullet 1
4	Yes; e	Medium	$\frac{x-5}{x+2}$ ; bullet 4
5	No		$(5x-2)(x-3)(x+1)$ ; aligned to All.8
6	Yes; d	Medium	c; bullet 3
7	Yes; a	Low	b; bullet 1 and 2
8	Yes; f	Low	$g(x)$ and $k(x)$ ; bullet 5