Name: _____ Date: _____ Period: _____

7.3 Identifying Characteristics of Rational Functions Practice

3 Types of Rational Functions

Type 1: Bottom Heavy (BH) – The degree on bottom is larger than the degree on top.

Type 2: Powers Equal (PE) – The degree on bottom is equal to the degree on top.

Type 3: Top Heavy (TH) – The degree on top is larger than the degree on bottom.

Vertical Asymptote(s): when every factor that includes a variable in the denominator is set equal to zero (after being simplified).	Domain: is the set of all real numbers except any excluded values from the vertical asymptote(s) and holes.
Horizontal Asymptote: For BH: y = 0 For PE: $\dfrac{\text{Leading Numerator Coefficient}}{\text{Leading Denominator Coefficient}}$ For TH: no horizontal asymptote	Range: is the set of all real numbers except any excluded values from the horizontal asymptote.
Holes: only exists when a factor that includes a variable cancels top and bottom. Holes are points so they are written as an ordered pair (x, y). **Find the y-coordinate by plugging in the x-coordinate into the simplified fraction.	Intercepts: x-intercept: set remaining factors in the numerator equal to zero. *(If you can't, there are no x-intercepts).* y-intercept: substitute x = 0 into the simplified rational function.

Identify the characteristics of each rational function by looking at the graph on the left.

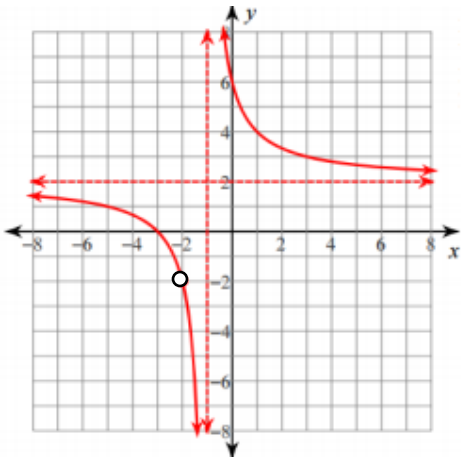| 1.	VA: _____ HA: _____ Domain: _____ Range: _____ x-int: _____ y-int: _____ holes: _____
2.	VA: _____ HA: _____ Domain: _____ Range: _____ x-int: _____ y-int: _____ holes: _____

3.
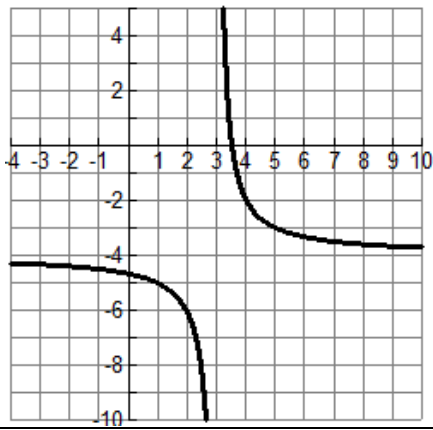
VA: _____ HA: _____

Domain: _____ Range: _____

x-int: _____ y-int: _____

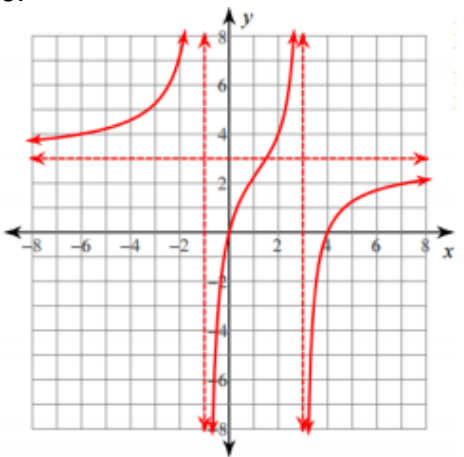holes: _____

4.

VA: _____ HA: _____

Domain: _____ Range: _____
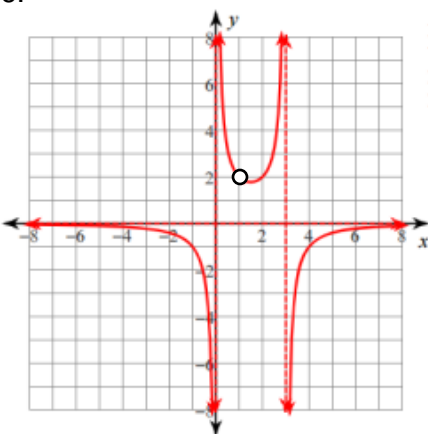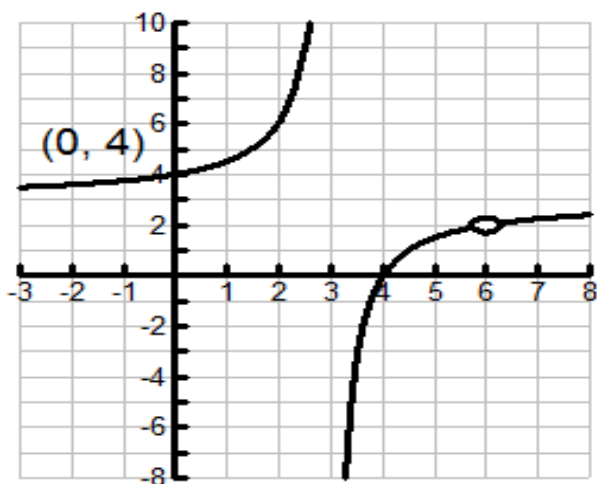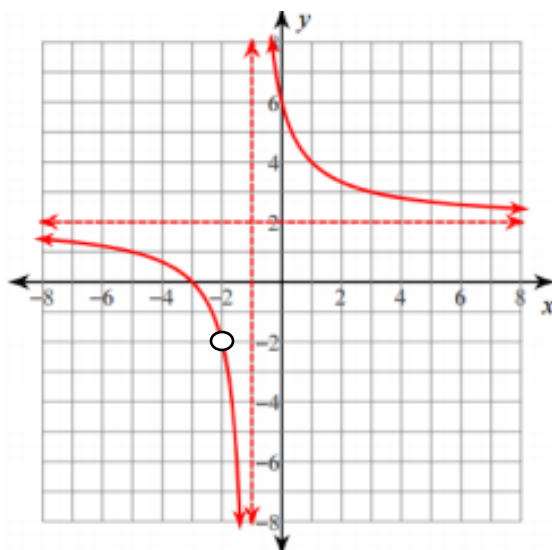
x-int: _____ y-int: _____

holes: _____

5.

VA: _____ HA: _____

Domain: _____ Range: _____

x-int: _____ y-int: _____

holes: _____

6.

VA: _____ HA: _____

Domain: _____ Range: _____
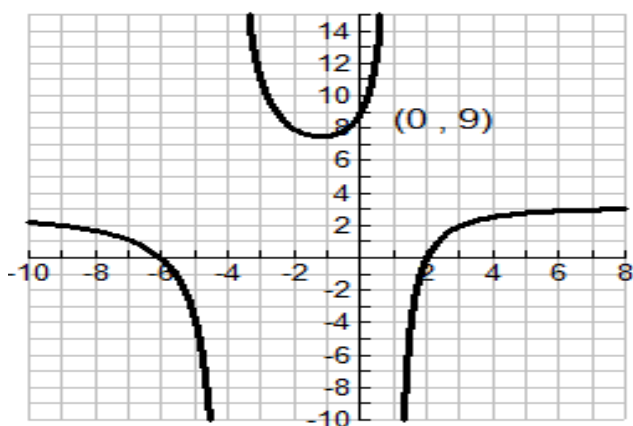
x-int: _____ y-int: _____

holes: _____

1

(0, 4)

2

(0 , 9)

3

4.

5.

6.