1.10 Rational Functions & Holes

AP Precalculus

Name: _____

CA #2

Find the hole(s) of the following rational functions, if one exists.

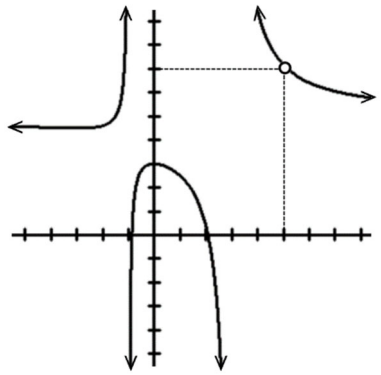
1. $f(x) = \dfrac{x^2 - 1}{x^2 + 7x - 8}$

2. $g(x) = \dfrac{3x^2 + 6x}{x^2 + 7x + 10}$

3. $h(t) = \dfrac{t^2 + 2t - 15}{t + 5}$

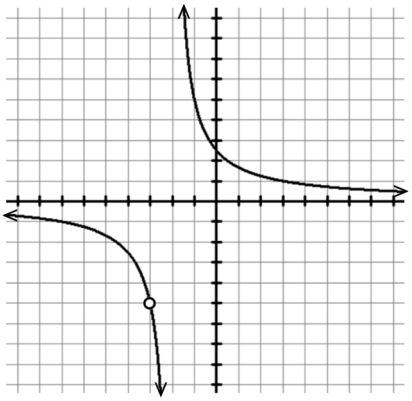
Use the graph of f to find the hole(s). Use limit notation.

4.



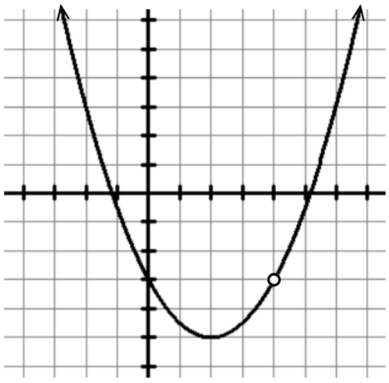
Limit Notation Hole(s):

5.



Limit Notation Hole(s):

6.



Limit Notation Hole(s):

CALCULATOR ACTIVE Complete the table to answer the following.

7. $f(x) = \frac{x^2-x-6}{2x+4}$

x	-2.1	-2.01	-2.001	-2	-1.999	-1.99	-1.9
$f(x)$							

Hole: Limit Notation of Hole:

CALCULATOR ACTIVE Complete the table to answer the following.

8. $f(x) = \frac{x^2-7x+10}{x-5}$

x	4.9	4.99	4.999	5	5.001	5.01	5.1
$f(x)$							

Hole: Limit Notation of Hole:

Answers to 1.10 CA #2

1. $x = 1$

2. $x = -2$

3. $t = -5$

4. $\lim_{x\to 5^-} f(x) = 7$ and $\lim_{x\to 5^+} f(x) = 7$

5. $\lim_{x\to -3^-} f(x) = -5$ and $\lim_{x\to -3^+} f(x) = -5$

6. $\lim_{x\to 4^-} f(x) = -3$ and $\lim_{x\to 4^+} f(x) = -3$

7.

x	$f(x)$
-2.1	-2.55
-2.01	-2.505
-2.001	-2.501
-2	undefined
-1.999	-2.4995
-1.99	-2.496
-1.9	-1.541

hole: $x = -2$

$\lim_{x\to -2^-} f(x) = -2.5$ $\lim_{x\to -2^+} f(x) = -2.5$

8.

x	$f(x)$
4.9	0.9666
4.99	0.9966
4.999	0.9996
5	undefined
5.001	1.0003
5.01	1.0033
5.1	1.0333

hole: $x = 5$

$\lim_{x\to 5^-} f(x) = 1$ $\lim_{x\to 5^+} f(x) = 1$