Name _____ Date _____ Class _____

LESSON 8-1

Graphing Simple Rational Functions

Practice and Problem Solving: A/B

Identify the horizontal and vertical asymptotes of the graph of the function. Then state the domain and range.

1. $y = \frac{2}{x+4} - 5$

Vertical Asymptote $x = -4$

Horizontal Asymptote $y = -5$

Domain $(-\infty, 4) \cup (4, +\infty)$

Range $(-\infty, -5) \cup (-5, +\infty)$

2. $y = \frac{3x-4}{4x+1}$

Vertical Asymptote $x = -\frac{1}{4}$

Horizontal Asymptote $y = \frac{3}{4}$

Domain $(-\infty, -\frac{1}{4}) \cup (-\frac{1}{4}, +\infty)$

Range $(-\infty, \frac{3}{4}) \cup (\frac{3}{4}, +\infty)$

3. $y = \frac{2x+1}{3x-2}$

Vertical Asymptote $x = \frac{2}{3}$

Horizontal Asymptote $y = \frac{2}{3}$

Domain $(-\infty, \frac{2}{3}) \cup (\frac{2}{3}, +\infty)$

Range $(-\infty, \frac{2}{3}) \cup (\frac{2}{3}, +\infty)$

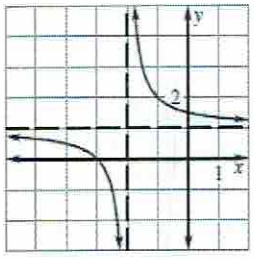
Match the function with its graph.

4. $f(x) = \frac{2}{x-3} + 1$ B

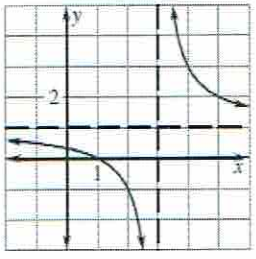
5. $f(x) = \frac{2x-3}{x-3}$ C

6. $y = \frac{x+3}{x+2}$ A

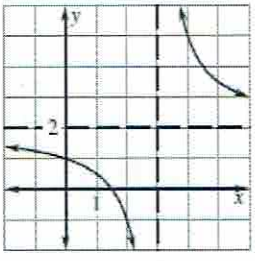
A.



B.

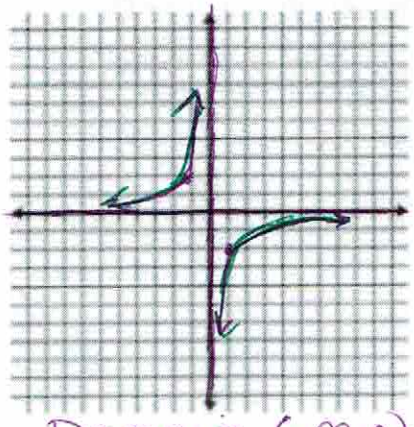


C.



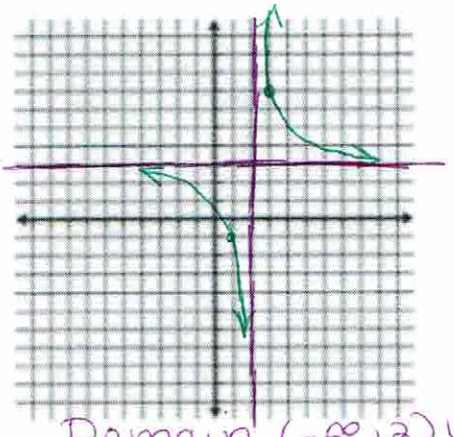
Graph the function. State the domain and range.

7. $y = -\frac{2}{x}$



Domain $(-\infty, 0) \cup (0, +\infty)$
Range $(-\infty, 0) \cup (0, +\infty)$

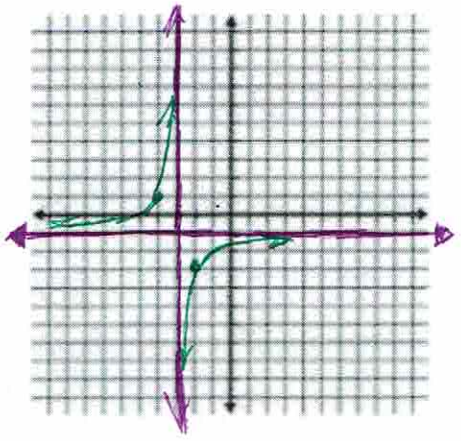
8. $y = \frac{4}{x-2} + 3$



Domain $(-\infty, 2) \cup (2, +\infty)$
Range $(-\infty, 3) \cup (3, +\infty)$

Graph the function. State the domain and range.

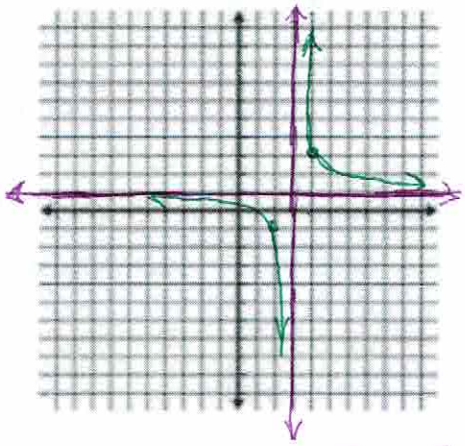
9. $y = -\dfrac{2}{x+3} - 1$



Domain $(-\infty, -3) \cup (-3, +\infty)$

Range $(-\infty, -1) \cup (-1, +\infty)$

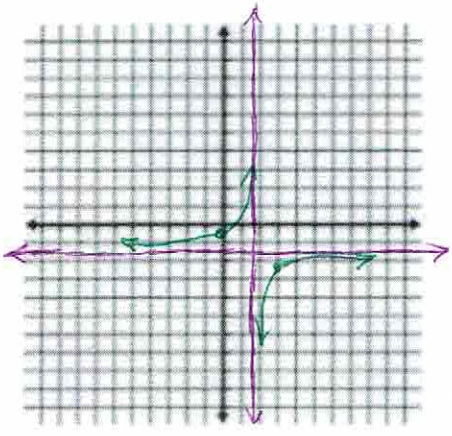
10. $y = \dfrac{x-1}{x-3}$



Domain $(-\infty, 3) \cup (3, +\infty)$

Range $(-\infty, 1) \cup (1, +\infty)$

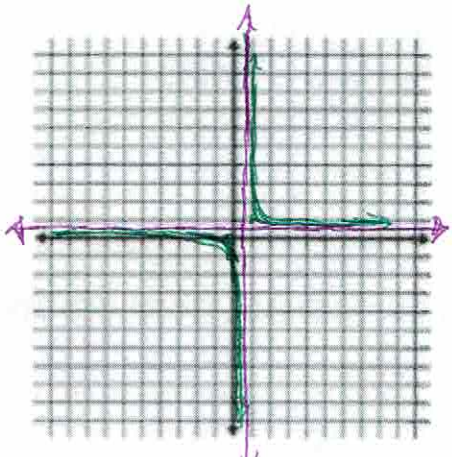
11. $y = \dfrac{3x-2}{-2x+3}$



Domain $(-\infty, \frac{3}{2}) \cup (\frac{3}{2}, +\infty)$

Range $(-\infty, -\frac{3}{2}) \cup (-\frac{3}{2}, +\infty)$

12. $y = \dfrac{x}{2x-1}$



Domain $(-\infty, \frac{1}{2}) \cup (\frac{1}{2}, +\infty)$

Range $(-\infty, \frac{1}{2}) \cup (\frac{1}{2}, +\infty)$