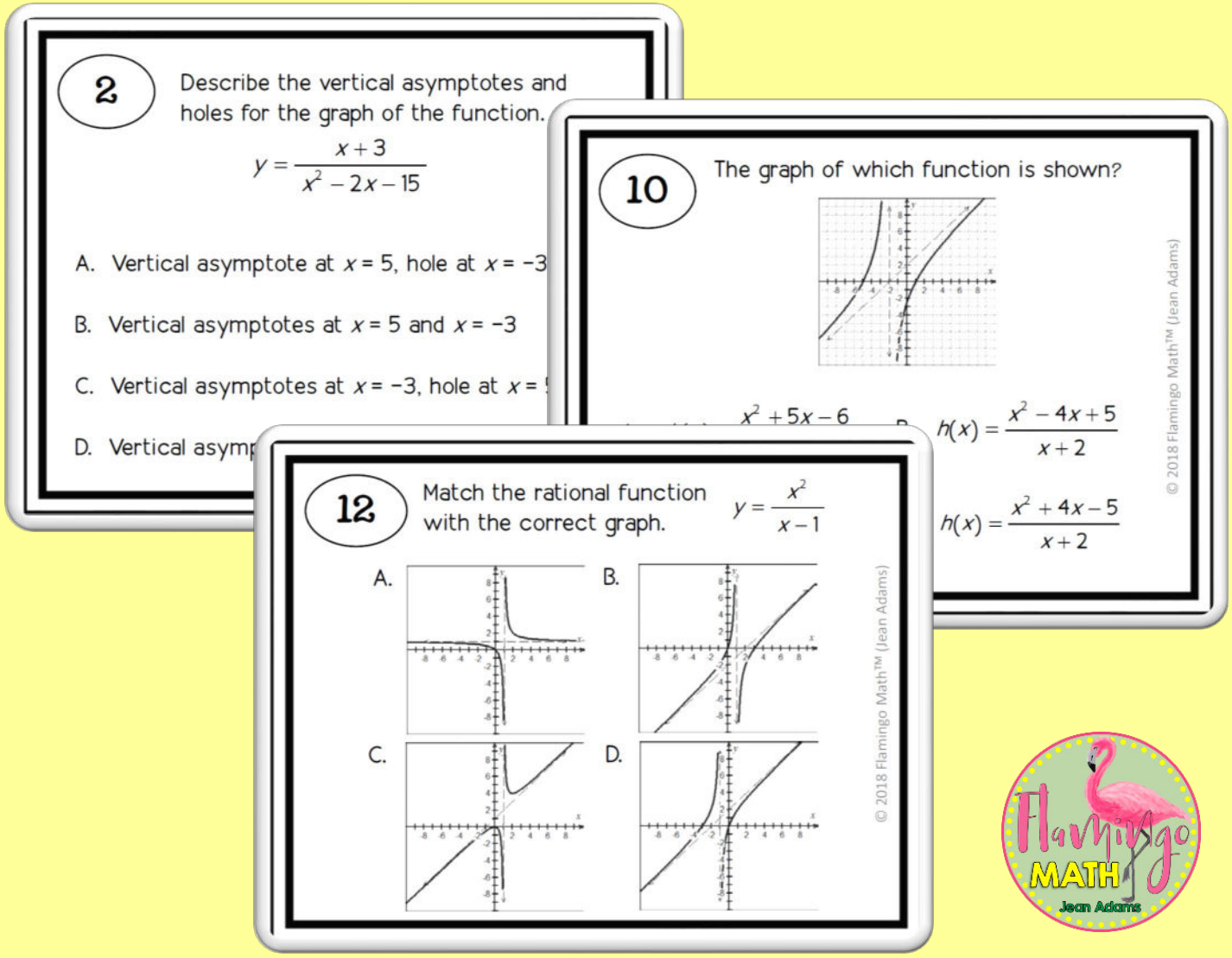
Rational Functions

Task Cards



Flamingo MATH Jean Adams

1

Find any points of discontinuity for the rational function. $y = \dfrac{3x+6}{x^2-x+6}$

A. $x = 3$

B. $x = 3,\ x = -2$

C. $x = 3,\ x = 2$

D. $x = 2,\ x = -3$

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2

Describe the vertical asymptotes and holes for the graph of the function.

$$y = \frac{x+3}{x^2-2x-15}$$

A. Vertical asymptote at $x = 5$, hole at $x = -3$

B. Vertical asymptotes at $x = 5$ and $x = -3$

C. Vertical asymptotes at $x = -3$, hole at $x = 5$

D. Vertical asymptote at $x = -5$, hole at $x = 3$

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3

State the domain for the function.

$$f(x) = \frac{(x-6)(x+5)}{x^2-4}$$

A. $(-\infty,\infty)$

B. $(-\infty,-5)\cup(-5,6)\cup(6,\infty)$

C. $(-\infty,-6)\cup(-6,5)\cup(5,\infty)$

D. $(-\infty,-2)\cup(-2,2)\cup(2,\infty)$

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4

Write an equation for the translation of $f(x) = \dfrac{2}{x}$ with asymptotes at $x = -2$ and $y = 3$.

A. $g(x) = \dfrac{2}{(x-3)} + 2$

B. $g(x) = \dfrac{2}{x-2} + 3$

C. $g(x) = \dfrac{2}{x+2} + 3$

D. $g(x) = \dfrac{2}{x-3} - 2$

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5

What are the asymptotes of the graph $y = \dfrac{8}{x-3}$?

A. $x = 3,\ y = 0$

B. $x = 0,\ y = 8$

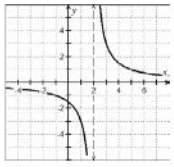
C. $x = 3,\ y = 8$

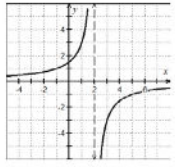
D. $x = 8,\ y = 5$

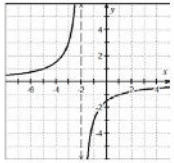
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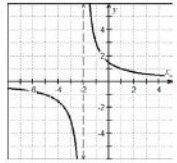
6

Graph the function $y = \dfrac{-3}{x-2}$

A. 

B. 

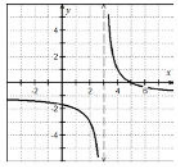
C. 

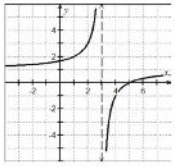
D. 

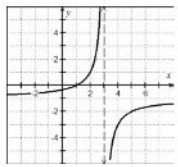
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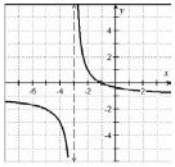
7

Graph the function $y = \dfrac{2}{x+3} - 1$

A. 

B. 

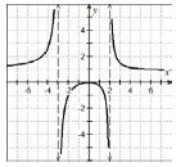
C. 

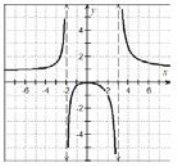
D. 

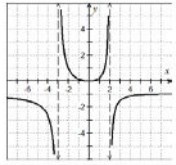
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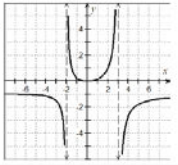
8

Graph the function $y = \dfrac{x^2}{x^2+x-6}$

A. 

B. 

C. 

D. 

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9 Which best describes the graph of $g(x)=\frac{2}{x+5}$ as a transformation of the graph of $f(x)=\frac{1}{x}$?

A. Translate 5 units right, vertical stretch factor 2.

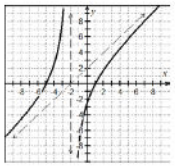
B. Translate 5 units left, vertical compression $\frac{1}{2}$.

C. Translate 5 units left, vertical stretch factor 2.

D. Translate 5 units right, vertical shift 2 units up.

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10 The graph of which function is shown?



A. $h(x)=\frac{x^2+5x-6}{x+2}$ B. $h(x)=\frac{x^2-4x+5}{x+2}$

C. $h(x)=\frac{x^2+4x-5}{x-2}$ D. $h(x)=\frac{x^2+4x-5}{x+2}$

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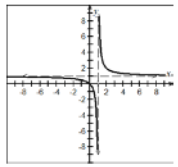
11 Find the slant asymptote: $f(x)=\frac{x^2+4x-2}{x-1}$

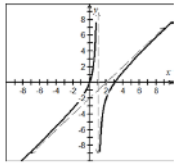
A. $y=1$ B. $y=x+5$

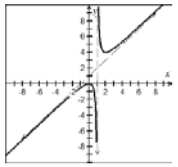
C. $y=x-1$ D. $y=x+1$

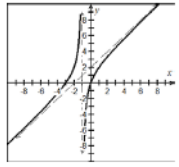
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12 Match the rational function with the correct graph. $y=\frac{x^2}{x-1}$

A. 

B. 

C. 

D. 

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13 Which of the following functions has a horizontal asymptote at $y=3$?

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

C. $f(x)=\frac{x-5}{3x+2}$ D. $f(x)=\frac{3x-7}{x^2+2}$

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14 Find the intercepts: $f(x)=\frac{x^2-4}{x^2-16}$

A. $(-2,0),(2,0)$

B. $(-2,0),(2,0),(-4,0),(4,0)$

C. $\left(0,\frac{1}{4}\right),(-2,0),(2,0)$

D. $(0,4),(-2,0),(2,0)$

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15 $f(x)=\frac{ax+4}{5x-b}$

Consider the rational function $f(x)$, where a and b are natural numbers. The vertical and horizontal asymptotes of the graph of $f(x)$, respectively are:

A. $x=b$, $y=a$ B. $x=\frac{b}{5}; y=\frac{a}{5}$

C. $x=\frac{5}{b}; y=-\frac{4}{a}$ D. $x=\frac{b}{5}; y=-\frac{a}{5}$

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16 Find an equation of the function whose graph is a horizontal shift 3 units to the right, and a vertical shift 4 units up of the graph of $f(x)=\frac{1}{x}$.

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

C. $g(x)=\frac{4x}{x-3}$ D. $g(x)=\frac{1}{x-3}+4$

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