Name_____ Class_____ Date_____

8-3 Practice

Form G

Rational Functions and Their Graphs

Find the domain, points of discontinuity, and x- and y-intercepts of each rational function. Determine whether the discontinuities are removable or nonremovable.

1. $y = \dfrac{(x-4)(x+3)}{x+3}$

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

Find the vertical asymptotes and holes for the graph of each rational function.

5. $y = \dfrac{5-x}{x^2-1}$

7. $y = \dfrac{x}{x(x-1)}$

9. $y = \dfrac{x-2}{(x+2)(x-2)}$

11. $y = \dfrac{x^2-25}{x-4}$

Find the horizontal asymptote of the graph of each rational function.

13. $y = \dfrac{2}{x-6}$

15. $y = \dfrac{2x^2+3}{x^2-6}$

Sketch the graph of each rational function.

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

19. $y = \dfrac{x}{x^2+4}$

Name_____ Class _____ Date_____

8-3 Practice (continued) *Form G*

Rational Functions and Their Graphs

21. How many milliliters of 0.75% sugar solution must be added to 100 mL of 1.5% sugar solution to form a 1.25% sugar solution?

23. Error Analysis A student listed the asymptotes of the function $y = \frac{x^2 + 5x + 6}{x(x^2 + 4x + 4)}$ as shown at the right.

Explain the student's error(s). What are the correct asymptotes?

horizontal asymptote
none

vertical asymptote
x = 0

Sketch the graph of each rational function.

25. $y = \frac{2x}{x - 6}$

27. $y = \frac{2x^2 + 10x + 12}{x^2 - 9}$