

Mid-Chapter Assessment

Chapter 8 (Lessons 8.1–8.4)

Write the letter that best answers the question or completes the statement.

_____ 1. If y varies inversely as x and $y = 20$ when $x = 10$, then find the constant of variation.

- a. $k = 200$ b. $k = 10$ c. $k = 2$ d. $k = \frac{1}{2}$

_____ 2. Find the equation of the horizontal asymptote of the graph of

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

- a. $y = 2$ b. $y = -2$ c. $y = 0$ d. $x = 0$

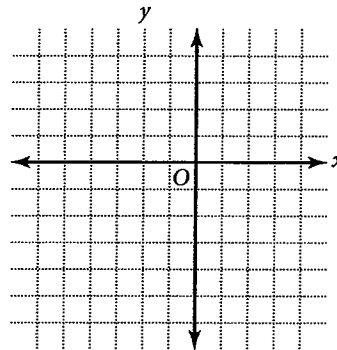
_____ 3. Where does the hole in the graph of $f(x) = \frac{x^2 + 6x + 8}{x^2 - 2x - 8}$ occur?

- a. $x = 1$ b. $x = -2$ c. $x = -3$ d. $x = 4$

_____ 4. Which of the following is the simplest form of $\frac{4x + 1}{4x + 3} - \frac{2x - 8}{4x + 3}$?

- a. $\frac{2x - 7}{4x + 3}$ b. $\frac{x + 3}{2x + 1}$
 c. $\frac{x - 7}{2x + 3}$ d. $\frac{2x + 9}{4x + 3}$

5. Sketch the graph of $f(x) = \frac{-3x + 1}{x + 2}$, showing all asymptotes. Write equations of the asymptotes.



_____ 6. If y varies jointly as x and z and $y = 100$ when $x = 5$ and $z = 4$, find y when $x = 15$ and $z = 6$.

_____ 7. Find the domain of $f(x) = \frac{3x + 5}{x^2 + 3x - 18}$.

Simplify.

8. $\frac{x^2 - 36}{x^2 + 6x} \div \frac{x^2 - 4x - 12}{x^3 + 4x^2}$

9. $\frac{3}{x^2 + 2x} + \frac{5x}{x^2 - 4}$

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