

Precalculus - Rational Functions and Asymptotes - Test

Common Core A-APR.D.7, F-IF.C.7d, A-CED.A.1 · maths-pdf.fr/en/

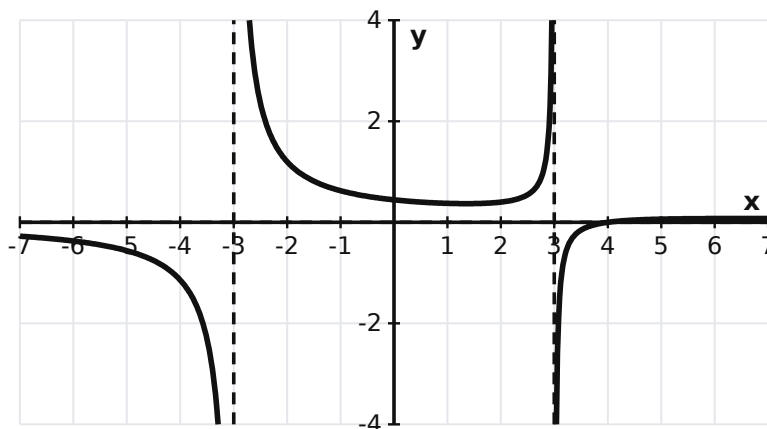
Name: _____ Class: _____ Date: ____/____/____

This 20-point test covers domain, asymptotes, holes, rational equations, inequalities and an average-cost model (A-APR.D.7, F-IF.C.7d). You have 45 minutes. Show your work.

About this test

- Grade: Precalculus
- Chapter: Rational Functions and Asymptotes
- Standards: A-APR.D.7, F-IF.C.7d, A-CED.A.1
- Time: 45 minutes
- Total: 20 points

Question 1 - Domain and vertical asymptotes [2 pts]



Graph of f .

For $f(x) = \frac{x-4}{x^2-9}$, state the domain and the equations of the vertical asymptotes.

Question 2 - Horizontal asymptotes [2 pts]

Find the horizontal asymptote of (a) $\frac{5x^2-3}{2x^2+x}$, (b) $\frac{4x+1}{x^2+2}$.

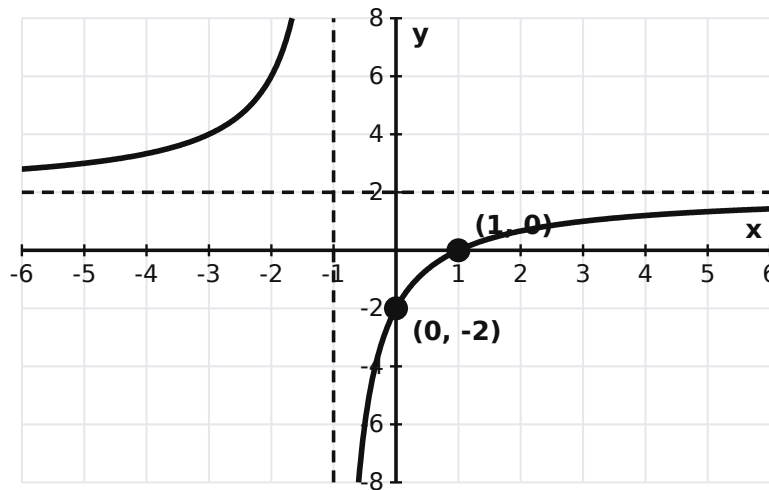
Question 3 - Hole and asymptote [2 pts]

For $f(x) = \frac{x^2 - x - 6}{x^2 - 2x - 3}$, find the hole and the vertical asymptote.

Question 4 - Slant asymptote [2 pts]

Find the slant asymptote of $f(x) = \frac{2x^2 + 3x - 1}{x + 1}$.

Question 5 - Read a rational graph [3 pts]



Graph of f .

The graph of f is shown with its asymptotes dashed. (a) Write the equations of the asymptotes. (b) State the intercepts. (c) State the domain and range.

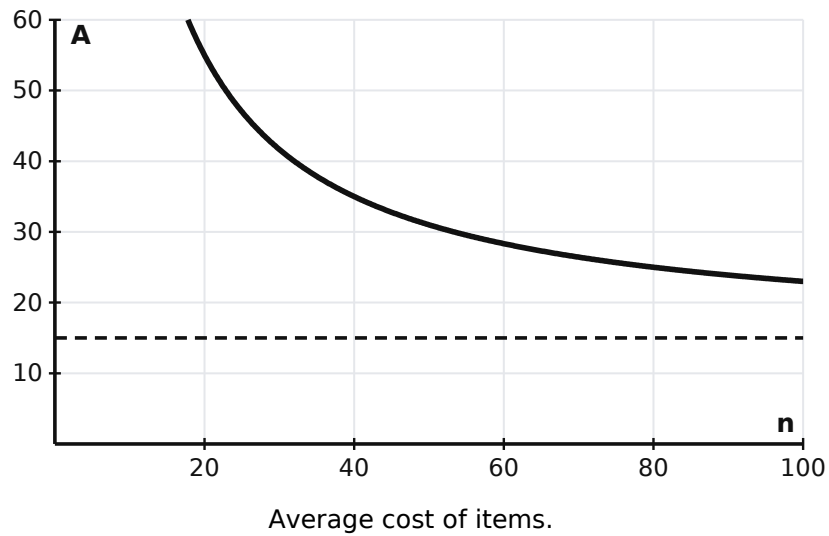
Question 6 - Solve a rational equation [2 pts]

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

Question 7 - Extraneous solution [2 pts]

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

Question 8 - Average cost [3 pts]



Making n bracelets costs \$800 plus \$15 each, so $A(n) = \frac{800+15n}{n}$. (a) Find $A(40)$. (b) Explain the horizontal asymptote. (c) Find n for an average cost of \$20.

Question 9 - Rational inequality [2 pts]

Solve $\frac{x+3}{x-1} < 0$.