

Algebra 2 - Rational Expressions - Test

Common Core A-APR.D.7, A-SSE.A.2 · maths-pdf.fr/en/

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

This 45-minute test on rational expressions has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: Rational Expressions
- Standards: A-APR.D.7, A-SSE.A.2
- Time: 45 minutes
- Total: 20 points

Question 1 - Excluded values [2 pts]

State the excluded values of $\frac{x-5}{x^2-3x-10}$, then simplify the expression.

Question 2 - Simplify [2 pts]

Simplify $\frac{x^2+2x-15}{x^2-9}$.

Question 3 - Multiply [2 pts]

Multiply and simplify: $\frac{2x}{x+4} \cdot \frac{x^2-16}{6x}$.

Question 4 - Divide [2 pts]

Divide: $\frac{x^2-4}{x+3} \div \frac{x+2}{x^2+6x+9}$.

Question 5 - Add [3 pts]

Add: $\frac{2}{x-3} + \frac{4}{x+1}$. Give the answer as a single simplified fraction.

Question 6 - Complex fraction [2 pts]

Simplify $\frac{\frac{1}{x} + \frac{1}{3}}{\frac{1}{x} - \frac{1}{3}}$.

Question 7 - Two pumps [2 pts]

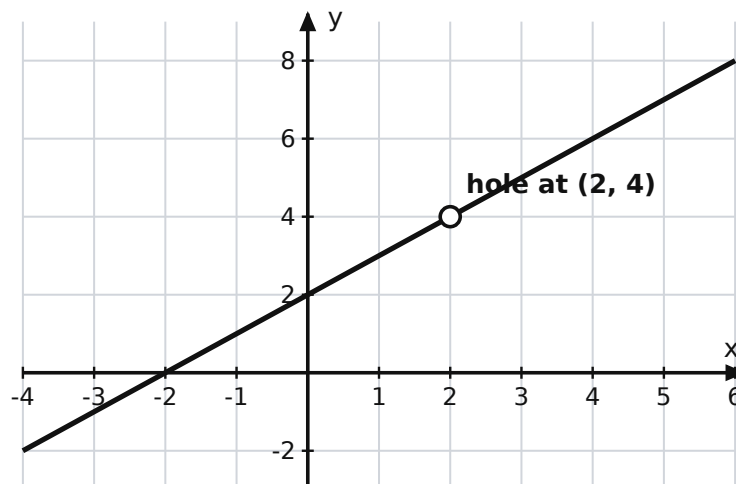
Fraction of the job done in 1 hour

A	1/6	
D	1/4	
together 5/12		

Aisha paints 1/6 of the fence per hour and Diego 1/4 per hour: together 5/12.

Pump A empties a tank in 6 hours and pump B empties it in 4 hours. How long do the two pumps take together? (The bars show the hourly rates.)

Question 8 - Structure and holes [3 pts]



$y = (x^2 - 4)/(x - 2)$ is the line $y = x + 2$ with a hole at $x = 2$.

Simplify $g(x) = \frac{x^4 - 16}{x^2 - 4}$ by recognizing the structure, and state the excluded values.

Question 9 - Find the error [2 pts]

x	6	12
$(x + 6)/6$	2	3
$x + 1$	7	13

Comparison at two values.

A student wrote $\frac{x+6}{6} = x+1$. Use the table to show the claim is false and write the correct simplification.