Pre-Calculus 11 - VLN

Chapter 4: Rationals

Lesson 3: Multiplying and Dividing Rational Expressions

Question #1

Reference Q.15217

Simplify. State the restrictions on the variables.

a. $\dfrac{8a^2b^2c}{12abc^2} \times \dfrac{12a^2c}{6bc}$

b. $\dfrac{9x^3y^3}{12x^5} \times \dfrac{48x^2y^3}{14y} \times \dfrac{6x}{27y^4}$

Question #2

Reference Q.15218

Simplify. State the restrictions on the variable.

a. $\dfrac{15a^2(a-1)}{8(2a+3)} \times \dfrac{10(2a+3)}{3a}$

b. $\dfrac{7x(x+2)(x-3)}{21(x-7)(x+7)} \times \dfrac{(x+7)^2(x-7)}{2x(x-3)}$

c. $\dfrac{6y-30}{(y-1)} \times \dfrac{5y-5}{3y^2-15y}$

d. $\dfrac{10x+2}{5x-1} \times \dfrac{x-1}{35x+7}$

Question #3

Reference Q.15223

Simplify. State the restrictions on the variables.

a. $\dfrac{3a^2bc}{10bc^2} \div \dfrac{12a^2b^2c}{6bc}$

b. $\dfrac{8x^2y^3}{-9x^3y} \div \dfrac{-15x^2y}{14y^3} \div \dfrac{7x}{-6xy^4}$

c. $\dfrac{\dfrac{2xy}{5x^2y^2}}{\dfrac{10x^2y}{15y}}$

d. $\dfrac{-5m^3n}{2p} \div \left(\dfrac{8p^3}{10m} \div \dfrac{4p}{15n}\right)$

Question #4

Reference Q.15224

Simplify. State the nonpermissible values.

a. $\dfrac{(3x+5)^2}{x^2-49} \div \dfrac{(3x+5)(x+1)}{x-7}$

b. $\dfrac{4y+20}{5y-20} \div \dfrac{2y^2-50}{y^2-16}$

c. $\dfrac{(p-6)(p+2)}{p(p+1)} \div \dfrac{36-p^2}{p^2+p}$

d. $\dfrac{\dfrac{a^2-81}{9a}}{(a-9)^2}$

Question #5

Reference Q.15225

Simplify.

a. $\dfrac{a^2-3a-10}{a^2-5a+6} \div \dfrac{a^2+a-30}{a^2+4a-12}$

b. $\dfrac{x^2+13x+36}{x^2-4} \div \dfrac{x^2-6x-40}{x^2-8x-20}$

c. $\dfrac{\dfrac{y^3+4y^2-32y}{y^2-64}}{y-4}$

d. $\dfrac{x^2+14x+49}{\dfrac{x^2+5x-14}{x^2-2x}}$

Question #6

Reference Q.15226

Simplify.

a. $\dfrac{2a^2-3a-9}{8a^2+14a+3} \div \dfrac{3a^2-7a-6}{8a^2+14a+3}$

b. $\dfrac{x^4-5x^2y^2+4y^4}{x^2+3xy+2y^2} \div \dfrac{x^2-4xy+4y^2}{5x-10y}$

Question #7

Reference Q.15231

Consider the division $\dfrac{a^2-a-12}{a^2-4a+4} \div \dfrac{a^2-10a+24}{a^2-a-2}$. The number of nonpermissible values is

A. 2
B. 3
C. 4
D. more than 4

Question #8

Reference Q.15229

Simplify. State the nonpermissible values.

a. $\dfrac{a-1}{a+4} \div \dfrac{a^2+6a+5}{a^2-1} \times \dfrac{a^2+3a-4}{a^2-2a+1}$

b. $\dfrac{a-1}{a+4} \div \left(\dfrac{a^2+6a+5}{a^2-1} \times \dfrac{a^2+3a-4}{a^2-2a+1}\right)$

Question #9

Reference Q.15232

When simplified, the complex fraction $\dfrac{\dfrac{10x^2-x-3}{2x^2-5x-3}}{\dfrac{5x-3}{2x^2-18}}$ reduces to a linear expression of the form $Ax+B$. The value of $A+B$ is ____.

Question #10: Rational Expressions01

Reference Q.20457

Simplify the following expression:

$\frac{x^2-4x+3}{x^2+3x-4} \div \frac{x-3}{x^2-16} + \frac{x+5}{x}$

Question #11: Rational Expressions02

Reference Q.20458

Simplify the following expression:

$\frac{x^2-25}{x-4} \times \frac{x^2-5x+4}{x+5} - \frac{1}{x-2}$

Question #12

Reference Q.15230

Simplify $\left(\dfrac{x}{x+1} \times \dfrac{3}{3-x}\right) - \left(\dfrac{1}{x+1} \div \dfrac{2}{x-3}\right)$.

Question #13

Reference Q.15228

Simplify.

a. $\dfrac{5-\dfrac{1}{a}}{5+\dfrac{1}{a}}$

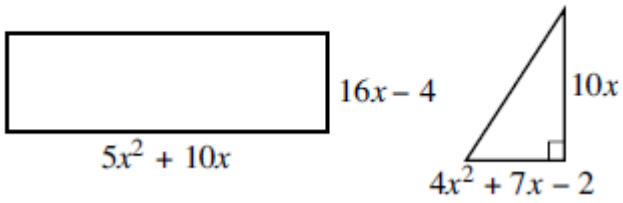
b. $\dfrac{8+\dfrac{4}{x}}{4-\dfrac{1}{x^2}}$

c. $\dfrac{\dfrac{3}{p^2}-\dfrac{1}{p^2-4}}{1-\dfrac{6}{p^2}}$

Question #14

Reference Q.15227

The rectangle shown has length $5x2+10x$ cm and width $16x-4$ cm. The triangle has base $4x^2+7x-2$cm and height $10x$ cm.



Write and simplify an expression that represents the ratio of the area of the rectangle to the area of the triangle.