Activity 35

Name: _____

$\frac{9}{4x}$	$\frac{4}{5x^2}$	$\frac{5}{6}$	$\frac{2x}{5}$	$\frac{9}{4x}$	$\frac{4}{5x^2}$
$\frac{x}{8}$	$\frac{1}{8}$	$\frac{5}{6}$	$\frac{2x}{5}$	$\frac{x}{8}$	$-\frac{1}{2x}$
$-\frac{2}{5}$	$\frac{1}{4}$	$\frac{5}{12x}$	$\frac{3}{x}$	$\frac{1}{4}$	$-\frac{2}{5}$
$-\frac{x^2}{12}$	$\frac{5x}{3}$	$\frac{45}{2x^2}$	$\frac{3x}{8}$	$\frac{5x}{3}$	$-\frac{x^2}{12}$
$\frac{9}{4x}$	$\frac{4}{5x^2}$	$\frac{5}{6}$	$\frac{2x}{5}$	$\frac{9}{4x}$	$\frac{4}{5x^2}$
$\frac{x}{8}$	$-\frac{1}{2x}$	$\frac{5}{6}$	$\frac{2x}{5}$	$\frac{x}{8}$	$\frac{1}{8}$

Multiply or divide. Simplify if necessary.

$\frac{3x}{4} \cdot \frac{2}{6x}$

$\frac{5x^2}{6} \cdot \frac{2}{x}$

$\frac{3}{4x} \div \frac{2}{x^2}$

$-\frac{5}{x^2} \cdot \frac{x}{10}$

$\frac{7x^2}{12} \div \frac{14x}{3}$

$\left(-\frac{1}{3x}\right)\left(-\frac{6x^2}{5}\right)$

$\left(\frac{3x}{5}\right)\left(-\frac{10}{15x}\right)$

$\frac{x}{8} \div \frac{3x^2}{10}$

$\left(-\frac{15}{x^2}\right) \div \left(-\frac{20}{3x}\right)$

$\frac{1}{4x^2} \div \frac{2}{x^2}$

$\left(-\frac{x}{y}\right)\left(-\frac{3y}{x^2}\right)$

$\frac{4y}{3x} \div \frac{8y}{5x}$

$\left(-\frac{2x^3}{15}\right)\left(\frac{5}{8x}\right)$

$\frac{y}{3x^3} \cdot \frac{12x}{5y}$

$\frac{3x}{4} \cdot \frac{12}{x} \div \frac{2x^2}{5}$

Activity 37

Name: _____

$\frac{x+2}{3x}$	$\frac{1}{x-1}$	$\frac{1}{x(x+2)}$	$\frac{x-3}{x-1}$	$\frac{3}{5}$	$\frac{1}{2}$
$\frac{x}{2}$	$\frac{5}{x}$	$x-3$	$\frac{2}{x+2}$	$\frac{1}{5}$	$\frac{x-2}{x+7}$
$\frac{1}{2}$	$\frac{x-5}{5}$	$\frac{x+3}{5}$	$\frac{1}{x(x+2)}$	$\frac{x+1}{x}$	$\frac{x+2}{3x}$
$\frac{x+3}{5}$	$\frac{3}{5}$	$\frac{1}{2}$	$\frac{x+2}{3x}$	$\frac{1}{x-1}$	$\frac{1}{x(x+2)}$
$\frac{2}{x+2}$	$\frac{1}{5}$	$\frac{x-2}{x+7}$	$\frac{x}{2}$	$\frac{5}{x}$	$x-3$
$\frac{1}{x(x+2)}$	$\frac{x+1}{x}$	$\frac{x+2}{3x}$	$\frac{1}{2}$	$\frac{x-5}{5}$	$\frac{x-3}{x-1}$

Multiply or divide. Simplify if possible.

$\frac{1}{x-3} \cdot \frac{2(x-3)}{x+2}$

$\frac{x-5}{x} \cdot \frac{5}{x-5}$

$\frac{x-5}{x+2} \div \frac{5}{x+2}$

$\frac{x-3}{x+2} \cdot \frac{x+2}{x-1}$

$\frac{x-3}{x+2}(x+2)$

$\frac{x+2}{5} \div \frac{x+2}{3}$

$\frac{x+3}{2x} \cdot \frac{x}{x+3}$

$\frac{3x}{x^2-x} \cdot \frac{x-2}{3x-6}$

$\frac{x}{5} \cdot \frac{x-2}{x^2-2x}$

$\frac{x-6}{x+5} \div \frac{2(x-6)}{x(x+5)}$

$\frac{x^2-4}{x} \cdot \frac{1}{3x-6}$

$\frac{x+3}{x-3} \div \frac{5}{x-3}$

$\frac{x^2+2x+1}{5x} \cdot \frac{5}{x+1}$

$\frac{x-2}{x^2-5x} \cdot \frac{x-5}{x^2-4}$

$\frac{3x-6}{x^2-49} \div \frac{3x}{x^2-7x}$

Why Are Ancient Stories Like Feet?

Express each product below in simplest form. Find your answer in the answer column and notice the two letters next to it. Write these letters in the two boxes at the bottom of the page that contain the number of that exercise.

① $\frac{a^2-b^2}{a^4b} \cdot \frac{ab^2}{3a+3b}$

② $\frac{4-a}{5a} \cdot \frac{a^2+5a}{a^2+a-20}$

③ $\frac{a^2+5ab+6b^2}{a^2-5ab+6b^2} \cdot \frac{10a-30b}{5a+10b}$

④ $\frac{3a^2b-ab^2}{6a} \cdot \frac{9a^2}{9a^2-b^2}$

⑤ $\frac{2a^2-13a+15}{8a^2-12a} \cdot \frac{6a-4a^2}{a^2-10a+25}$

⑥ $\frac{-a^3+ab^2}{a^2} \cdot \frac{a^3+7a^2b}{a^2+6ab-7b^2}$

⑦ $\frac{6a+24}{2a^2+5a-12} \cdot \frac{4a^2-9}{15a^2}$

⑧ $\frac{8a-40}{40-3a-a^2} \cdot \frac{a-8}{2a^2-8a}$

⑨ $\frac{27a^4b^7}{3a^2-6a+3} \cdot \frac{(a-1)^3}{9ab^3}$

ES	$3a^3b(a-1)$
OT	$-a(a+b)$
EG	$a^3b^4(a-1)$
HL	$\frac{3a^2b}{2(3a+b)}$
EB	$\frac{b(a-b)}{3a^3}$
TS	$-\frac{4(a-8)}{4a-8}$
DS	$-\frac{4(a-8)}{a(a+8)(a-4)}$
TH	$\frac{2(a+3b)}{a-2b}$
AR	$\frac{2(2a+3)}{5a^2}$
EN	$-\frac{1}{5}$
EY	$-\frac{2a-3}{2(a-5)}$

3	3	5	5	7	7	1	1	6	6	4	4	9	9	2	2	8	8

What Is an Algebra Teacher's Favorite Breakfast?

Simplify the expression. Look for the letter of the answer in the string of letters near the bottom of the page and cross it out each time it appears. Then write the remaining letters in the space at the bottom of the page.

(1) $\frac{x^2-49}{6x^3} \cdot \frac{8x^2}{x^2+7x}$

(2) $\frac{x-4}{x^3+4x^2} \cdot \frac{9x^2+36x}{4-x}$

(3) $\frac{2x^2-200}{4x^2-40x} \cdot \frac{7x+21}{x^2+7x-30}$

(4) $\frac{6x^5}{x^2-11x+18} \div \frac{15x^2}{x^2+7x-18}$

(5) $\frac{25-x^2}{5x^4} \div \frac{x-5}{x^4+5x^3}$

(6) $\frac{x^2-5x-24}{8x^2+8x} \div (x^2+6x+9)$

(7) $\frac{a^2-b^2}{ab^3} \cdot \frac{a^4b^2}{a^2b-ab^2}$

(8) $\frac{a^2-9ab+20b^2}{a^2+8ab+7b^2} \cdot \frac{a+7b}{a^2-8ab+16b^2}$

(9) $\frac{10+3a-a^2}{60b} \cdot \frac{75b^5}{5a^2b+10ab}$

(10) $\frac{a^2-ab-12b^2}{12} \div \frac{2a^2+7ab+3b^2}{16a+8b}$

(11) $\frac{2b-9a}{81a^2-4b^2} \div \frac{1}{9a+b}$

(12) $\frac{a^4-b^4}{a^4+a^2b^2} \div \frac{a^2+2ab+b^2}{a^3}$

Answers 1–6

(U) $\frac{7(x+3)}{2x(x-3)}$

(O) $\frac{x-8}{8x+3}$

(A) $-\frac{x+5}{x-5}$

(F) $\frac{2x^3(x+9)}{5(x-9)}$

(J) $\frac{4(x-7)}{3x^2}$

(D) $\frac{7(x-3)}{4x(x+3)}$

(R) $\frac{x-8}{8(x+1)(x+3)}$

(L) $-\frac{9}{x}$

(C) $\frac{2x^2(x-9)}{5(x+9)}$

(P) $-\frac{(x+5)^2}{5x}$

Answers 7–12

(B) $-\frac{9a+b}{a+b}$

(G) $\frac{a-5b}{(a+b)(a-4b)}$

(S) $\frac{2(a-4b)}{3}$

(C) $-\frac{b^2(a-5)}{2a^2}$

(T) $\frac{a(a-b)}{a+b}$

(H) $\frac{a^2(a+b)}{b^2}$

(N) $\frac{a^5(a+b)}{b}$

(E) $-\frac{9a+b}{9a+2b}$

(I) $-\frac{b^3(a-5)}{4a}$

(X) $\frac{a-b}{(a+b)^2}$

S T B U H E A T L C R O F T E N A T J N U P E D I X R G G S

answer to puzzle:

Rational Expressions:
Multiplying and Dividing Rational Expressions (Review)