

Section 14-4: Dividing Fractions

1. 080022a, P.I. A.A.18

Perform the indicated operation and express

the result in simplest terms: $\frac{x}{x+3} \div \frac{3x}{x^2-9}$

2. 060727b, P.I. A2.A.16

If $f(x) = \frac{3x^2-27}{18x+30}$ and $g(x) = \frac{x^2-7x+12}{3x^2-7x-20}$,

find $f(x) \div g(x)$ for all values of x for which the expression is defined and express your answer in simplest form.

3. 010434b, P.I. A.A.18

Express in simplest form:

$$\frac{4x+8}{x+1} \cdot \frac{2-x}{3x-15} \div \frac{x^2-4}{2x^2-8x-10}$$

4. 010733b, P.I. A.A.18

Perform the indicated operations and simplify completely:

$$\frac{x^2-9}{x^2-5x} \cdot \frac{5x-x^2}{x^2-x-12} \div \frac{x-4}{x^2-8x+16}$$

[2] $\frac{x-3}{3}$ and multiplication by the reciprocal,

correct factoring, and canceling are shown.

[1] The difference of two squares,

$x^2 - 9 = (x+3)(x-3)$, is factored correctly.

or [1] Appropriate work is shown, but the final answer is incorrect.

or [1] $\frac{x-3}{3}$ but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[1] incorrect procedure.

[4] $\frac{x+3}{2}$, and appropriate work is shown.

[3] Appropriate work is shown, but one computational, factoring, or simplification error is made.

[2] Appropriate work is shown, but two or more computational, factoring, or simplification errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as failing to multiply by the reciprocal of $g(x)$ or trying to solve for x .

[1] Appropriate work is shown, but one conceptual error and one computational, factoring, or simplification error are made.

or [1] $\frac{x+3}{2}$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[2] incorrect procedure.

[6] $-\frac{8}{3}$, and appropriate work is shown.

[5] Appropriate work is shown, but one computational error is made.

[4] Appropriate work is shown, but two or more computational errors are made.

[3] Appropriate work is shown, but one conceptual error is made, such as not factoring out -1 when canceling out $2 - x$.

[2] Appropriate work is shown, but one conceptual error and one computational error are made.

[1] $-\frac{8}{3}$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[3] incorrect procedure.

[6] $-(x-3)$, $-x+3$, or $3-x$, and appropriate work is shown.

[5] Appropriate work is shown, but one computational, factoring, or simplification error is made.

[4] Appropriate work is shown, but two computational, factoring, or simplification errors are made.

or [4] $x-3$, and appropriate work is shown.

[3] Appropriate work is shown, but three or more computational, factoring, or simplification errors are made.

or [3] Appropriate work is shown, but one conceptual error is made, such as not multiplying by the multiplicative inverse.

[2] Appropriate work is shown, but one conceptual error and one computational, factoring, or simplification error are made.

[1] $-(x-3)$, $-x+3$, or $3-x$, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.
