

11.4 Multiplying + Dividing Rat. Exp.

May, 11 2007

Multiply: $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$

Dividing: $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$

Dividing is the Same as
Multiplying by the Recip.



ex1

$$\frac{3x^3}{4x} \cdot \frac{8x}{15x^4} = \frac{24x^4}{560x^5} = \frac{2}{5x}$$

$$\frac{3x^3}{4x} \cdot \frac{28x}{515x^4} = \frac{2}{5x}$$

as long
as something
on the top
cancel or
Reduce w/
something
on the bottom

we must first factor all parts completely

ex 2

$$\frac{x}{3x^2 - 9x} \cdot \frac{(x-3)}{2x^2 + x - 3} = \frac{1}{3(x-1)(2x+3)}$$

$3x(x-3)$ $(x-1)(2x+3)$

Leave the Answer in the
Reduced factored form.



ex 3]

$$\frac{7x}{x^2 + 5x + 4} \cdot \frac{(x+4)}{1} = \frac{7x}{(x+1)}$$

The image shows a handwritten mathematical derivation. The numerator of the first fraction is $7x$. The denominator is $x^2 + 5x + 4$, which is factored into $(x+1)(x+4)$. The $(x+4)$ term in the denominator is crossed out with a diagonal line. The second fraction is $\frac{(x+4)}{1}$, where the $(x+4)$ term is also crossed out with a diagonal line. The final result is $\frac{7x}{(x+1)}$, which is underlined twice. There are some red annotations: "1:4" and "2:2" near the x^2 and 4 terms, and a red "1" under the $(x+1)$ term in the denominator of the final result.

ex4)

$$\frac{4n}{n+3} \div \frac{n-9}{n+3}$$

Before we talk
about Factor
completly,
Change \div to $*$

$$= \frac{4n}{(n+3)} \cdot \frac{(n+3)}{(n-9)} = \frac{4n}{(n-9)}$$

ex5

$$\frac{x^2 - 9}{4x^2} \div \frac{(x-3)}{1}$$

$$= \frac{(x+3)(x-3)}{4x^2} \cdot \frac{1}{(x-3)} = \frac{(x+3)}{4x^2}$$

O.T.L.

① Pa 655: 16-28 (a)

② Ch. 11 Test Tuesday

③ Ch. 12 Test Following
week on ~~Thursday~~
Tuesday