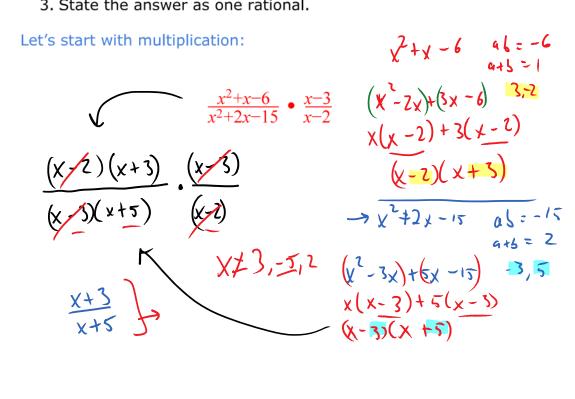
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Multiplying and Dividing Rationals

- 1. We always have to state the restrictions.
 - > Dividing by zero is never allowed.
 - > Sometimes this can be hard to see. For example, x^2+x-6 does not immediately look like it has zeroes of -3 and 2.
- 2. Factor all numerators and denominators.
 - > This is so you can cancel terms. This will often be the
- 3. State the answer as one rational.



$$\frac{x^{2}+7x+12}{x^{2}+2x-15} \bullet \frac{x^{2}-5x+6}{x^{2}-16} \qquad (x^{2}+4x)+(2x+12) \quad 4x+3 \quad 4x+12 \quad (x+4)+3(x+4)$$

$$(x+4)(x+3) \quad (x+4)+3(x+4) \quad (x+4)(x+3)$$

$$(x+3)(x+5) \quad (x+3)(x-7) \quad (x+3)(x+5) \quad (x+3)(x+6) \quad (x+3)(x+7)$$

$$(x+3)(x-7) \quad (x+3)(x-7) \quad (x+3)(x+7) \quad (x+3)(x+7)$$

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$$(x+3)(x+7) \quad (x+7)(x+7) \quad (x+7)(x+7)$$

We love quadratics, we love factoring and we love fractions!

This should be the best chapter ever!

When we divide a couple things need to be remembered.

- 1. We invert and multiply when we have a fraction divided by a fraction.
 - > This is sometimes called "multiply by the inverse".
 - > I've heard others (only in this room) call it "kiss and flip".
- 2. You can not cancel terms until this is done.
- 3. We will end up with one more non permissible term.

