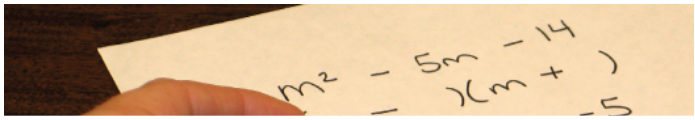
Look at the numbers in the trinomial and the binomial.

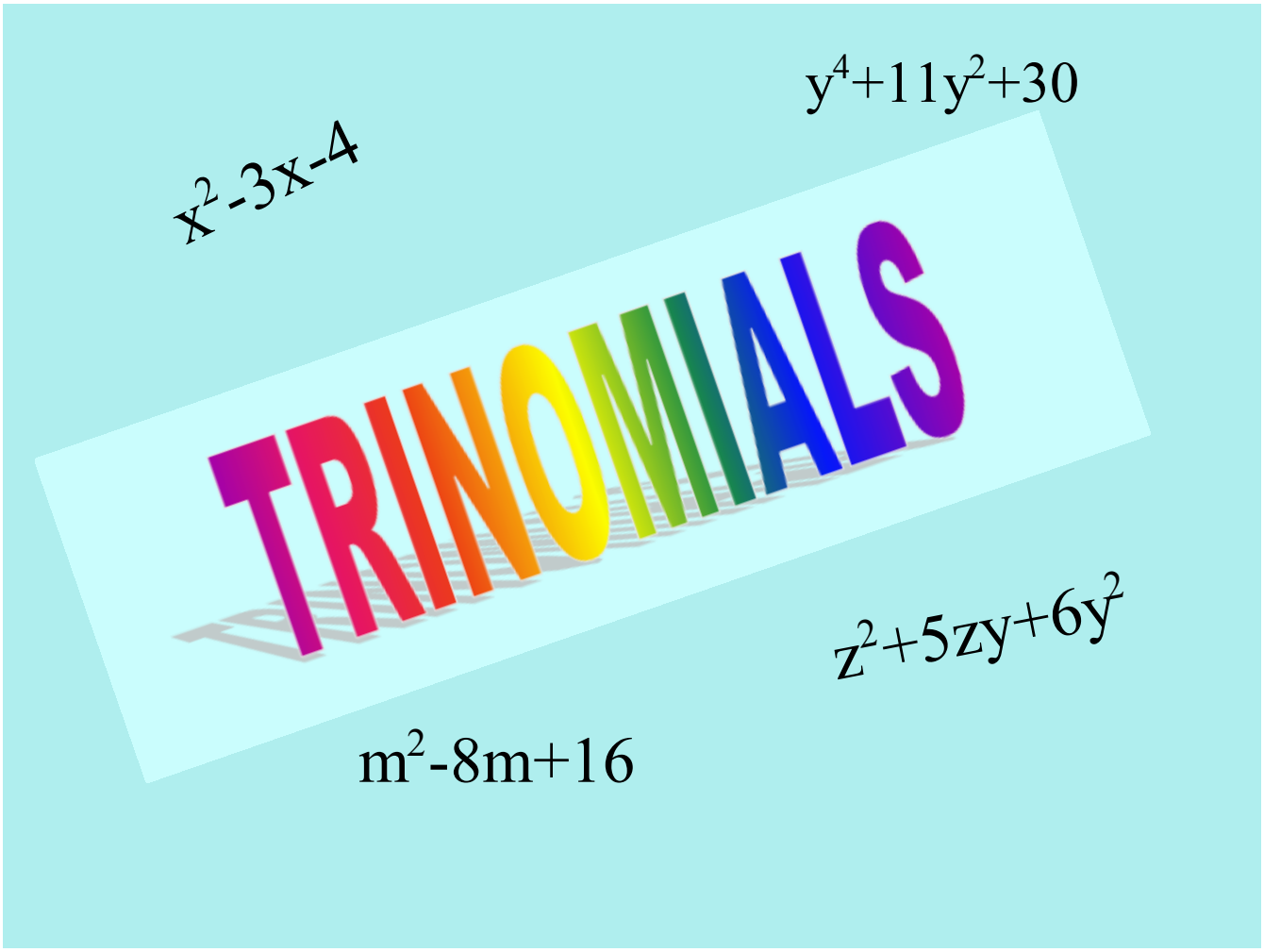
$v^2 + 12v + 20 = (v + 2)(v + 10)$

$v^2 + 10v + 2v + 20$

$v^2 + 12v + 20$




Factoring and Multiplying Polynomials are inverse operations



x^2-3x-4
y^4+11y^2+30
TRINOMIALS
$z^2+5zy+6y^2$
$m^2-8m+16$

Simple Trinomials

- has three terms with the form...

$$ax^2 + bx + c$$

- a simple trinomial has an "a" value of 1.

- we use a method of inspection to factor them.

CHECK IT OUT!!!

INSPECTION METHOD

- here's how it goes... "What two numbers?"

middle

Adds to get "b"

$$ax^2 + bx + c$$

last

Multiplies to get "c"

EXAMPLES...

signs are different

1) $x^2 + 13x - 48$

Sign on larger factor

if (+) sign of both terms is same

Last multiply

middle add

-48

$-1 \times +48$

$-2 \times +24$

$-3 \times +16$

$-4 \times +12$

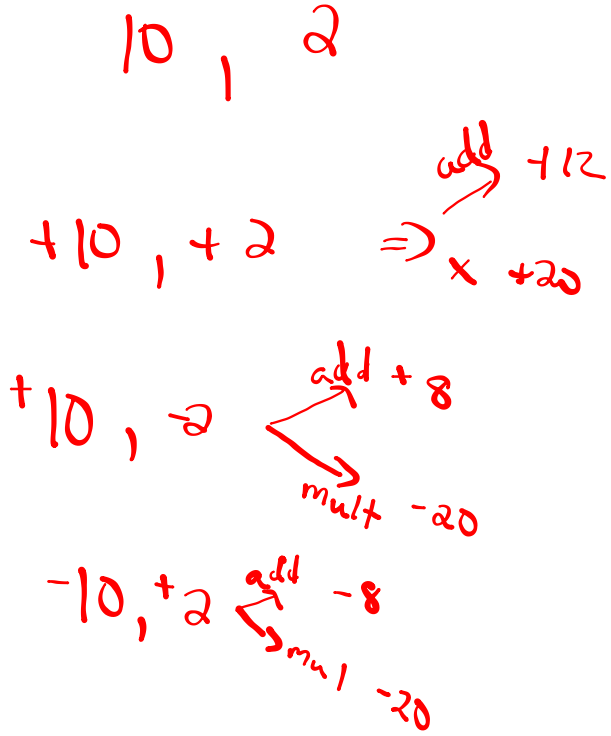
$-6 \times +8$

$+13$

$(x - 3)(x + 16)$

SOLUTIONS

Remember to multiply and get (-) sign where different


10 , 2
add +12
+10 , +2 =>
x +20
+10 , -2
add +8
mult -20
-10, +2
add -8
mult -20

Interger Rules

$(+)(+) = (+)$

$(-)(-) = (+)$

When the signs are the same you will be (+)

$(-)(+) \Rightarrow (-)$

When signs are different

Work

add multi

1. x^2+1x-6

sign on larger factor

(-) → signs on factor are different

Find two numbers that

multiply
to give -6.

add:
to give +1

$-1 \times +6$

$-2 \times +3$

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

How does this compare to the factoring of four term polynomials?????

$x^2 + 1x - 6$

$x^2 - 2x + 3x - 6$

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

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

$x^2+4x-21$

sign of larger factor

(-) signs on factors are different!

mult (last)

-21

add (middle)

$+4$

-1×21

-3×7

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

Another Example

(-) the signs on factors are different

$x^2 - 10x - 24$

sign on larger factor

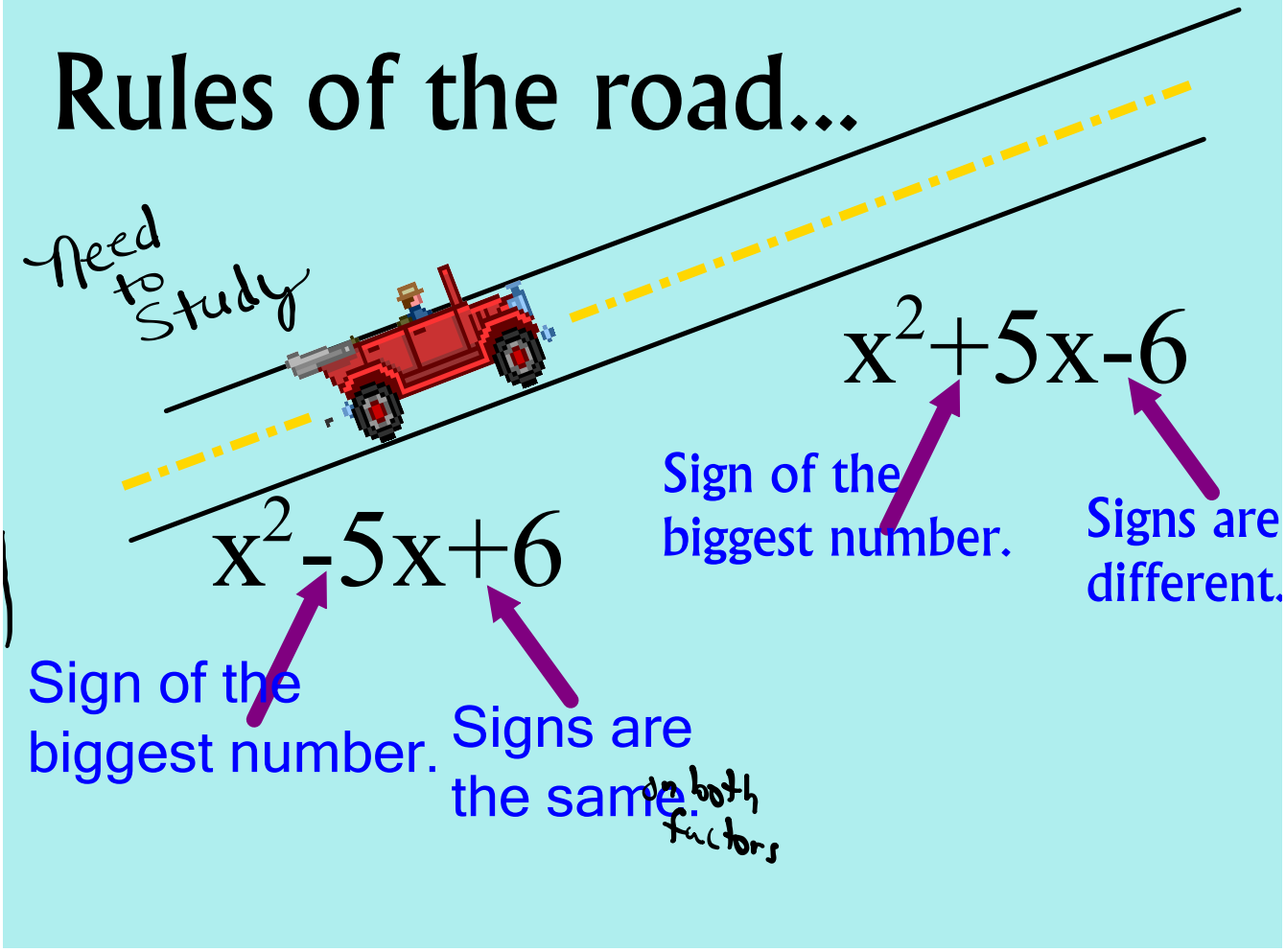
Mult (Last)
-24

Add (middle)
-10

+1 x -24
+2 x -12
+3 x -8
+4 x -6

$(x + 2)(x - 12)$

Rules of the road...



$x^2 - 15x + 56$

sign on larger factor

(+) sign on factors are the same

multiply (last)

-1×-56

-2×-28

-4×-14

-7×-8 ✓

Add (middle)

-15

$(x-7)(x-8)$

Factor Each of the following:

(Finish For homework)

Quiz ~~Tuesday~~ Next Wed ???

1. $x^2 - 14x + 45$ $(x-9)(x-5)$	2. $x^2 + 17x + 60$ $(x+12)(x+5)$
3. $x^2 - 18x + 80$ $(x-10)(x-8)$	4. $x^2 - 10x + 16$ $(x-8)(x-2)$
5. $x^2 - 6x + 9$ $(x-3)(x-3)$	6. $x^2 - 7x + 6$ $(x-6)(x-1)$
7. $x^2 + 20x + 99$ $(x+9)(x+11)$	8. $x^2 + 3x - 18$ $(x+6)(x-3)$
9. $x^2 - 3x - 88$ $(x-11)(x+8)$	10. $x^2 - 16x + 48$ $(x-12)(x-4)$
11. $x^2 + 11x + 30$	12. $x^2 - 14x + 33$
13. $x^2 + x - 30$	14. $x^2 - 3x - 70$
15. $x^2 + 8x - 9$	16. $x^2 - 16x + 55$
17. $x^2 + 6x - 72$	18. $x^2 + 5x - 50$
19. $x^2 + 10x + 24$	20. $x^2 + 6x - 16$