

Assume the following register allocation: \$13 = x, \$20 = y, \$15 = z
 Write MIPS code to compute the following expression?

$$z = 4 + x * y - z;$$

R-type

op	rs	rt	rd	shamt	func
6 bits	5 bits	5 bits	5 bits	5 bits	6 bits

add \$5, \$10, \$4

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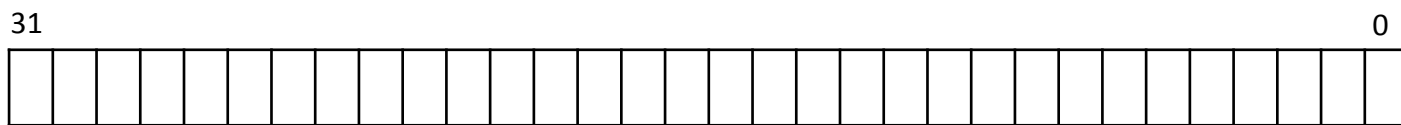
I-type

op	rs	rt	imm
6 bits	5 bits	5 bits	16 bits

ori \$7, \$2, 0xff

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- **op** is an **operation code** or **opcode** that selects a specific operation.
- **rs** is always a the first source register
- **rt** is either a second source (R-type) or a destination (I-type)
- **rd** is the destination register in R-type
- **shamt** is only used for shift instructions.
- **func** is used together with **op** to select an arithmetic instruction.
- **imm** is a 16-bit signed two's-complement value from -32,768 to +32,767.



Instruction	Opcode	Func	alu_op	itype	wr_enable
add					
sub					
and					
or					
xor					
nor					
addi					
andi					
ori					
xori					

