

Floating Point Arithmetic

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CSC201 Section 002

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Floating Point Multiply

- Steps
 - Multiply (unsigned) mantissas
 - add exponents
 - set sign of result
 - normalize
- Overflow: possible, but we'll skip it!

	Sign	Exponent (decimal)	Mantissa
	0	+4	1.10...0
*	1	-2	1.10...0
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(unnormalized)	1	+2	10.10..0
(normalized)	1	+3	1.010..0

Floating Point Division

- Steps
 - Divide (unsigned) mantissas
 - subtract exponent of divisor from exponent of dividend
 - normalize
 - set sign of result
- Overflow and underflow: possible, but skip it!

	Sign	Exponent (decimal)	Mantissa
	0	-3	1.001...0
/	0	+5	1.100...0
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(unnormalized)	0	-8	0.110..0
(normalized)	0	-9	1.100..0

Floating Point Addition

- Steps
 - Align smaller exponent with larger
 - Add (unsigned) mantissas
 - normalize
 - set sign of result
- Overflow: possible, but skip it!

	Sign	Exponent (decimal)	Mantissa
	0	+6	1.001...0
+	0	+4	1.100...0
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	0	+6	1.001...0
+	0	+6	.0110..0
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(normalized)	0	+6	1.100...0

Floating Point Subtract

- Skip it!