MAC0300 - Lista 2

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PROMPT: Exercises 6.4, 6.10 e 7.5 from IEEE (Overton) book.

6.4

If using float-point precision:

$1 \times 2^{-24} =$ | 0 | 01100111 | 00000000000000000000000 |

If using double-point precision:

$1 \times 2^{-53} =$ | 0 | 01111001010 | 0000000000000000000000000000000000000000000000000000 |

6.10

Correctly rounded:

Result = | 0 | 01111111 | 00000000000000000001 |

One guard bits:
Result = 1. One guard bit is not enough as, after shifting 24 places to the right, the second term would be filled with zeros with a single one on the guard bit. If rounding up, the result would be correct.

Two guard bits:
Result = 1. Again, two guard bits are not enough as, after shifting 24 places to the right, the second term would be filled with zeros with a single one on the first guard bit and another zero on the second guard bit. If rounding up, the result would be correct.

Two guard + 1 sticky bits:
Result = | 0 | 01111111 | 00000000000000000001 |. The number will be correctly rounded.

7.5