6.1.115 Find the missing factor.

$9-2x^{-1}+8x^{-3}=x^{-3}\cdot ?$

$9-2x^{-1}+8x^{-3}=x^{-3}\cdot(\square)$

← There are three terms in the question.

← Need to find three terms in parentheses so that distributing x^{-3} will give the original question.

$x^{-3}\cdot(\text{1st term}) = 9$

$(\text{1st term}) = \dfrac{9}{x^{-3}} = 9x^3$ ← divide both sides by x^{-3}.

$x^{-3}(\text{2nd term}) = -2x^{-1}$

$(\text{2nd term}) = \dfrac{-2x^{-1}}{x^{-3}} = -2x^{-1-(-3)} = -2x^2$

$x^{-3}(\text{3rd term}) = 8x^{-3}$

$(\text{3rd term}) = \dfrac{8x^{-3}}{x^{-3}} = 8$

So answer is

$x^{-3}(\text{1st term} + \text{2nd term} + \text{3rd term})$

$\boxed{x^{-3}(9x^3-2x^2+8)}$