Final Prep: Using inverse functions

Write the following numbers as rational numbers in standard form:

7^2

3^{-1}

$27^{1/3}$

$\left(\frac{4}{9}\right)^{-3/2}$

$\log_e(e^5)$

$e^{\log_e(7)}$

$\log_2(8)$

$\log_3\left(\frac{1}{9}\right)$

$\log_{10}(100{,}000{,}000)$

$\log_4\left(\frac{1}{\sqrt[3]{16}}\right)$

$\log_2(-4)$

(The last problem is a trick question. Why?)

Solve for x

① $3x = 2$

② $\sqrt{2}x = 5$

③ $x^3 = 7$

④ $e^x = 4$

⑤ $\log_e(x) = -5$

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⑥ $3x + 5 = 7$

⑦ $5\sqrt[3]{x-2} = -2$

⑧ $e^{2x-7} = 4$

⑨ $\log_e(9-2x) = -5$

Complete the rules

$e^x e^y =$	$\log_e(zw) =$
$e^x / e^y =$	$\log_e(z/w) =$
$(e^x)^y =$	$\log_e(z^w) =$
$e^0 =$	$\log_e(1) =$
$x^n y^n =$	$\sqrt[n]{x}\sqrt[n]{y} =$
$x^n / y^n =$	$\sqrt[n]{x} / \sqrt[n]{y} =$
$1^n =$	$\sqrt[n]{1} =$
$0^n =$	$\sqrt[n]{0} =$

Solve for x:

(10) $(x-2)^3 x^3 = -1$

(11) $\dfrac{\sqrt[3]{x^2+x}}{\sqrt[3]{x}} = -5$

(12) $\log_e(x^5) = 5$

(13) $\log_e(x) + \log_e(x-1) = 0$

(14) $e^{x^3+x} = 3e^x$

(15) $(e^{x+1})^x = 1$