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Foundation Algebra for Physical & Engineering (CELEN036)

Answers to Homework 2

1. (i) $2,\ -6$ (ii) $1,\ -6$ (iii) $-\frac{3}{2},\ \frac{4}{5}$ (iv) $-2 \pm \sqrt{12}$

2. (i) -1.159 (ii) 0.178 (iii) 0.092

   (iv) 1.363 (v) 6.213

3. (i) $\frac{1}{32}$ (ii) 1004 (iii) 24.5

   (iv) 4 (v) 5

4. (i) $t = -\frac{2}{R} \ln\left(1 - \frac{RI}{E}\right)$ (ii) $x = \frac{\ln\left(\frac{A+B-y}{B}\right)}{-C}$

   (iii) $A = \frac{B}{x^C}$ (iv) $t = \frac{\log \frac{A}{P}}{n \log\left(1 + \frac{r}{n}\right)}$

5. (i) $f^{-1}(x) = \ln x + 5$; domain: $(0, \infty)$; range: $(-\infty, \infty)$

   (ii) $f^{-1}(x) = \ln(x + 4) - 1$; domain: $(-4, \infty)$; range: $(-\infty, \infty)$

   (iii) $f^{-1}(x) = \frac{1}{3} e^{\frac{x}{2}}$; domain: $(-\infty, \infty)$; range: $(0, \infty)$

   (iv) $f^{-1}(x) = e^{x-6} + 1$; domain: $(-\infty, \infty)$; range: $(1, \infty)$