Comprehensive Review #7

Topics:
Lesson 59 - Advanced Log Problems
Lesson 59 - Color of the white house
Lesson 98 - Change of Base

1. Solve: $\log_4(x + 9) - \log_4 x = 3$

Solve for x:

2. $\log_{10}(x-7) + \log_{10}(x-4) = 1$

3. $\frac{1}{2}\log_4 16 - \log_4(x+5) = 1$

Solve:

4. $\log_4(x + 3) - \log_4 x = 3$ [A] $\frac{1}{21}$ [B] none of these [C] $\frac{11}{3}$ [D] $\frac{3}{11}$

5. $\log_5(x + 10) - \log_5 x = 4$ [A] $\frac{5}{312}$ [B] none of these [C] $\frac{312}{5}$ [D] $\frac{10}{19}$

Simplify:

6. $4^{\log_4 \sqrt{2} + \log_4 \sqrt{5}}$ [A] $\sqrt{2} + \sqrt{5}$ [B] $4\sqrt{2} + 4\sqrt{5}$ [C] $4\sqrt{10}$ [D] $\sqrt{10}$

7. $5^{\log_5 \sqrt{7} + \log_5 \sqrt{8}}$ [A] $10\sqrt{14}$ [B] $2\sqrt{14}$ [C] $5\sqrt{7} + 10\sqrt{2}$ [D] $\sqrt{7} + 2\sqrt{2}$

8. $3^{\log_3 \sqrt{6} + \log_3 \sqrt{10}}$ [A] $2\sqrt{15}$ [B] $\sqrt{6} + \sqrt{10}$ [C] $3\sqrt{6} + 3\sqrt{10}$ [D] $6\sqrt{15}$

9. Express $\log_5 2$ in terms of natural logarithms. Do not find a numerical answer.

10. Express $\log_2 6$ in terms of natural logarithms. Do not find a numerical answer.

11. Express $\log_6 8$ in terms of natural logarithms. Do not find a numerical answer.