1. $\log(x-5)+\log(x+4)=1$

$\log(x-5)(x+4)=1$

$(x-5)(x+4)=10$

$x^2+4x-5x-20=10$

$x^2-x-30=0$

$(x-6).(x+5)=0$

$x-6=0 \rightarrow x=6$

$x+5=0 \rightarrow x=-5$

$\Rightarrow \sum x=6-5=1$

Cevap: C

2. $\log_x(1+\log_x 8)=2$

$x^2=1+\log_x 8$

$x=2$ için ; $2^2=1+\log_2 8$

$4=4+\log_2 2^3$

$4=1+3.\log_2 2$

$4=4$

Cevap: C

3. $\log 5=\dfrac{\log_3 5}{\log_3 10}=\dfrac{\log_3 5}{\log_3 2+\log_3 5}=\dfrac{x}{1}$

$\left.\begin{array}{l}\log_3 5=x.k\\ \log_3 2+\log_3 5=k\\ \log_3 2+x.k=k\\ \log_3 2=k-x.k\end{array}\right\}$ $\dfrac{\log_3 10}{\log_3 2}=\dfrac{\log_3 2+\log_3 5}{\log_3 2}$

$=\dfrac{k-x.k+x.k}{k-xk}$

$=\dfrac{k}{k(1-x)}=\dfrac{1}{1-x}$

Cevap: B

4. $3^{3x}=10$

$\log_3 10=3x$

$\dfrac{1}{3}\log_3 10=x \Rightarrow \log_3 10^{\frac{1}{3}}=x$

Cevap: D

5. $\dfrac{1}{1+\log_{\frac{1}{5}}15}=\dfrac{1}{\log_{\frac{1}{5}}\frac{1}{5}+\log_{\frac{1}{5}}15}$

$=\dfrac{1}{\log_{\frac{1}{5}}\frac{1}{5}.15}=\dfrac{1}{\log_{\frac{1}{5}}3}$

$=\dfrac{1}{\log_5 1^3}=\dfrac{1}{-\log_5 3}=-\log_3 5$

Cevap: C

6. $\dfrac{\frac{1}{2}\log_{2^{\frac{1}{2}}}3^{\frac{1}{2}}}{2\log_{2^2}3^2}=\dfrac{\frac{1}{2}\cdot\log_2 3}{2\cdot\frac{2}{2}\cdot\log_2 3}=\dfrac{\frac{1}{2}}{2}=\dfrac{1}{4}$

Cevap: D

7. $\log 2=m$

$\log 3=n$

$\log(1,2)=\log\dfrac{12}{10}=\log 12-\log 10$

$=\log 3+\log 4-1$

$=\log 3+\log 2^2-1$

$=\log 3+2\log 2-1$

$=n+2.m-1$

Cevap: B

8. $5.\log x=\log 9+\dfrac{1}{2}\log 3$

$=\log 9+\log\sqrt{3}$

$5\log x=\log 9.\sqrt{3}$

$\log x^5=\log 9.\sqrt{3}$

$x^5=3^2.3^{\frac{1}{2}}$

$x^5=3^{\frac{5}{2}} \Rightarrow x=3^{\frac{1}{2}}=\sqrt{3}$

Cevap: A

9. $\left.\begin{matrix}\log_5 m = a \\ \log_m 2 = b\end{matrix}\right\} \log_5 m.\log_m 2 = a.b$

$\log_5 2 = a.b$

$\log_{\sqrt{5}} 8 = \log_5 \frac{1}{2}^{2^3} = \frac{3}{\frac{1}{2}} \log_5 2$

$= 6.\log_5 2 = 6.a.b$

Cevap: E

10. $\log_4 2 + \log_9 3 - \log_3 27$

$\log_{2^2} 2 + \log_{3^2} 3 - \log_3 3^3$

$\frac{1}{2} + \frac{1}{2} - 3 = 1 - 3 = -2$

Cevap: B

11. $\log_{\sqrt{125}} \frac{1}{64} = \log_5 \frac{3}{2}^{2^{-6}} = \frac{-6}{\frac{3}{2}} \log_5 2 = -4.\log_5 2$

$= -4.x$

Cevap: E

12. A) $\log_4 16 = \log_4 4^2 = 2.\log_4 4 = 2$

A şıkkı yanlıştır.

Cevap: A

13. $\alpha = \log 2$

$\beta = \log 50$

$\beta = \log 50 = \log \frac{100}{2} = \log 100 - \log 2$

$= \log 10^2 - \log 2$

$= 2 - \alpha$

$\beta = 2 - \alpha$

Cevap: A

14. $\log_2 \frac{3x-2}{x+1} = 1$

$\frac{3x-2}{x+1} = 2$

$3x - 2 = 2x + 2$

$x = 4$

Cevap: B

15. $\log_2[\log_2 2(\ln(x+1))] = 1$

$2 = \log_2 2(\ln(x+1))$

$4 = 2\ln(x+1)$

$2 = \ln(x+1)$

$e^2 = x + 1$

$x = e^2 - 1$

Cevap: A

16. $\log_x 4 + \log_x 6 + \log_x 9 = 27\log_8 2$

$\log_x 4.6.9 = 27\log_2 3^2$

$\log_x 4.6.9 = 27 \cdot \frac{1}{3}$

$\log_x 4.6.9 = 3$

$x^3 = 4.6.9 = 2.2.2.3.3.3$

$x = 2.3 = 6$

Cevap: E

17. $\frac{2}{\log_3 36} + \frac{1}{\log_4 36} = 2.\log_{36} 3 + \log_{36} 4$

$= \log_{36} 9 + \log_{36} 4$

$= \log_{36} 36 = 1$

Cevap: B

18. $\log_9 2 = \log_3 2^2 = \frac{1}{2}\log_3 2 = a$

$\boxed{\log_3 2 = 2a}$

$\log_6 16 = \frac{\log_3 16}{\log_3 6} = \frac{\log_3 2^4}{\log_3 2 + \log_3 3}$

$= \frac{4.2a}{2a+1} = \frac{8a}{2a+1}$

Cevap: A

19. $\frac{\log_4 64}{\log_3 81} + \frac{\log_5 125}{\log_2 16}$

$= \frac{\log_4 4^3}{\log_3 3^4} + \frac{\log_5 5^3}{\log_2 2^4} = \frac{3}{4} + \frac{3}{4}$

$= \frac{6}{4} = \frac{3}{2}$

Cevap: D

20. $\log_4(64\log_x 81) = 4$

$4^4 = 64.\log_x 81$

$2^8 = 2^6.\log_x 81$

$2^2 = \log_x 81$

$x^4 = 81 \Rightarrow x = 3$

Cevap: D