Bellwork Hon Alg 2 Wednesday, May 3, 2017

Solve each. Round to the nearest hundredth.

1. $\log(x-3)+\log(x-24)=2$

2. $\log_5 4-\frac{2}{3}\log_5 x=2$

3. $2\log_2(x-6)-\log_2 x=3$

Bellwork Hon Alg 2 Wednesday, May 3, 2017 Answers

Solve each. Round to the nearest hundredth.

1. $\log(x-3)+\log(x-24)=2$

$\log(x-3)(x-24)=2$

$10^2=(x-3)(x-24)$

$100=x^2-27x+72$

$-100 \quad -100$

$0=x^2-27x-28$

$0=(x-28)(x+1)$

$x=28,-1$

$X=28$

-28, +1, -27

2. $\left[\log_5 4-\frac{2}{3}\log_5 x=2\right]3$

$3\log_5 4-2\log_5 x=6$

$\log_5 4^3-\log_5 x^2=6$

$\log_5 \frac{64}{x^2}=6$

$5^6=\frac{64}{x^2}$

$15625x^2=64$

$\sqrt{x^2}=\sqrt{\frac{64}{15625}}$

$x=\pm\frac{8}{125}$

$x=\frac{8}{125}$

3. $2\log_2(x-6)-\log_2 x=3$

$\log_2(x-6)^2-\log_2 x=3$

$\log_2\frac{x^2-12x+36}{x}=3$

$2^3=\frac{x^2-12x+36}{x}$

$8x=x^2-12x+36$

$0=x^2-20x+36$

$0=(x-2)(x-18)$

$x=2,18$

$X=18$

36, -18, -2, -20