Bellwork Alg 2B Wednesday, November 8, 2017

Solve each. Round to the nearest hundredth.

1. $\frac{3}{2}\log_2 4 - \frac{1}{2}\log_2 x = 3$

2. $\log_4(x^2 - 12x) = 3$

3. Let the function g be defined by $g(x) = 5x + 2$. If $\sqrt{g\left(\frac{a}{2}\right)} = 6$, what is the value of a?

A. $\frac{1}{\sqrt{6}}$ B. $\frac{1}{\sqrt{2}}$ C. $\frac{5}{2}$ D. $\frac{34}{5}$ E. $\frac{68}{5}$

4. A straight fence is to be constructed from posts 6 inches wide and separated by lengths of chain 5 feet long. If a certain fence begins and ends with a post, which of the following could not be the length of the fence in feet? (12 inches = 1 foot)

A. 17 B. 28 C. 35 D. 39 E. 50

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Answers

Solve each. Round to the nearest hundredth.

1. $\left(\frac{3}{2}\log_2 4 - \frac{1}{2}\log_2 x = 3\right)2$

$3\log_2 4 - \log_2 x = 6$

$\log_2 4^3 - \log_2 x = 6$

$\log_2 \frac{64}{x} = 6$

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

$64 = \frac{64}{x}$ $\quad x = 1$

2. $\log_4(x^2 - 12x) = 3$

$4^3 = x^2 - 12x$

$64 = x^2 - 12x$

$0 = x^2 - 12x - 64$

$(x-16)(x+4)$

$x = 16, -4$

Both are sol's

-64, -16, +4, -12

3. Let the function g be defined by $g(x) = 5x + 2$. If $\sqrt{g\left(\frac{a}{2}\right)} = 6$, what is the value of a?

A. $\frac{1}{\sqrt{6}}$ B. $\frac{1}{\sqrt{2}}$ C. $\frac{5}{2}$ D. $\frac{34}{5}$ E. $\frac{68}{5}$

$\left(\sqrt{5\left(\frac{a}{2}\right)+2}\right)^2 = (6)^2$

$5\left(\frac{a}{2}\right)+2 = 36$

$-2 \quad -2$

$\frac{2}{5}\cdot\frac{5}{2}a = 34\cdot\frac{2}{5}$

$a = 68/5$

4. A straight fence is to be constructed from posts 6 inches wide and separated by lengths of chain 5 feet long. If a certain fence begins and ends with a post, which of the following could not be the length of the fence in feet? (12 inches = 1 foot)

A. 17 B. 28 C. 35 D. 39 E. 50

$6'' = .5$ ft

.5' 5' .5' first section w/ 2 posts = 6 ft

5' .5' every additional section adds 5.5'

$6 + 5.5X = 17$

$X = 2$ ✓

$6 + 5.5X = 28$

$X = 4$ ✓

$6 + 5.5X = 35$

$X = 5.8$ X

$6 + 5.5X$

X = # sections of fencing after 1st section

X must be a whole #