Bellwork Alg 2B Friday, November 3, 2017

Solve each. Round to the nearest hundredth.

1. $5\log_2 x - 6 = 27$

2. $4 + 5\ln(x+2) = 1$

3. $\log_4(x+2) - \log_4(x-2) = 2$

Use the chart below for 4 and 5. The chart shows the amount paid in bonuses ($) to employees of a certain firm.

Bonus Paid to each employee	50	100	150	200
Number of employees	7	37	4	2

4. The average bonus per employee was

A. 81 B. 91 C. 100 D. 101 E. 105

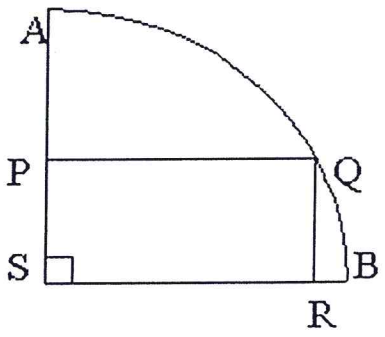
5. Refer to the chart from the previous question.

If median bonus amount = m, mean bonus amount = n, and mode bonus amount = p, which of the following represents the correct ordering of m, n and p?

A. $m < n < p$ B. $m < n = p$ C. $m = p < n$ D. $p < m < n$ E. $p = n < m$

6. ASB is a quarter circle. PQRS is a rectangle with sides PQ = 8 and PS = 6. What is the length of the arc AQB ?

A. 5π
B. 10π
C. 25
D. 14
E. 28



7. 6 pints of a 20 percent solution of alcohol in water are mixed with 4 pints of a 10 percent alcohol in water solution. The percentage alcohol in the new solution is

A. 16 B. 15 C. 14 D. 13 E. 12

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Answers

Solve each. Round to the nearest hundredth.

1. $5\log_2 x - 6 = 27$

$+6 \quad +6$

$\frac{5\log_2 X}{5} = \frac{33}{5}$

$\log_2 X = 6.6$

$2^{6.6} = X$

$X = 97.01$

2. $4 + 5\ln(x+2) = 1$

$-4 \quad -4$

$\frac{5\ln(x+2)}{5} = \frac{-3}{5}$

$\ln(x+2) = -.6$

$e^{-.6} = x+2$

$X = e^{-.6} - 2 =$

$X = -1.45$

3. $\log_4(x+2) - \log_4(x-2) = 2$

$\log_4 \frac{x+2}{x-2} = 2$

$4^2 = \frac{x+2}{x-2}$

$(x-2)16 = \frac{x+2}{x-2} \cdot (x-2)$

$16x - 32 = x + 2$

$15x = 34$

$X = 34/15$

Use the chart below for 4 and 5. The chart shows the amount paid in bonuses ($) to employees of a certain firm.

Bonus Paid to each employee	50	100	150	200
Number of employees	7	37	4	2

$= 50$

$7 \times 50 = 350$

$37 \times 100 = 3700$

$4 \times 150 = 600$

$2 \times 200 = 400$

5050

4. The average bonus per employee was

A. 81 B. 91 C. 100 D. 101 E. 105

$\text{mean} = \frac{5050}{50} = 101$

5. Refer to the chart from the previous question.

If median bonus amount = m, mean bonus amount = n, and mode bonus amount = p, which of the following represents the correct ordering of m, n and p?

A. $m < n < p$ B. $m < n = p$ C. $m = p < n$ D. $p < m < n$ E. $p = n < m$

n mean = 101

p mode = 100

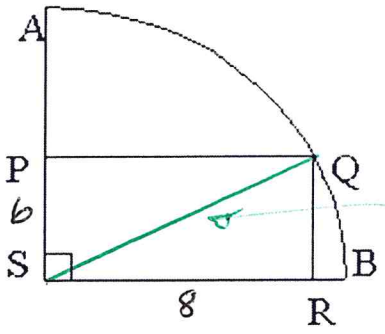
m = median = 100 ← Between 25 & 26 th #s which are both 100

$p = m < n$

$100 = 100 < 101$

6. ASB is a quarter circle. PQRS is a rectangle with sides PQ = 8 and PS = 6. What is the length of the arc AQB ?

A. 5π
B. 10π
C. 25
D. 14
E. 28



use pythagorean thm

$SQ = 10$

i. this is the radius of the circle

circumference $= 2\pi r$

$= 2\pi(10)$

$= 20\pi$

arc $\overset{\frown}{AQB}$ is 1/4 of the circles circumference

$m\overset{\frown}{AQB} = \frac{1}{4} \cdot 20\pi = 5\pi$

7. 6 pints of a 20 percent solution of alcohol in water are mixed with 4 pints of a 10 percent alcohol in water solution. The percentage alcohol in the new solution is

A. 16 B. 15 C. 14 D. 13 E. 12

$(.20)(6 \text{ pints}) =$ 1.2 pt of alcohol

$(.10)(4 \text{ pints}) =$ .4 pt of alcohol

TOTAL 1.6 pints of alcohol

out of a total of $6+4 = 10$ pints of solution

$$\% \text{ alcohol} = \frac{1.6 \text{ pts of alcohol}}{10 \text{ TOTAL pts of sol}} \times 100$$

$= 16\%$