Bellwork Alg 2 Thursday, January 24, 2019 hrs 1-3

1. The function f is defined by $f(x) = |x - 2| - 3$. If $f(a) = f(0)$ and $a > 0$, what is the value of a ?

A) 3 B) 4 C) 5 D) 6

2. If $\sqrt[5]{a^4} \cdot \sqrt[3]{a^2} = a^n$ for all values of a, what is the value of n ?

A) $\frac{8}{15}$ B) $\frac{3}{4}$ C) $\frac{22}{15}$ D) $\frac{11}{4}$

3. If a and b are positive numbers such that $2b = 3a$, what is the value of $\frac{a+b}{b}$?

4. Martin spent \$855 on expenses for a trip. The expenses included hotel, rental car, and meals. He spent 50 percent more for the hotel than for the rental car and meals combined. What did Martin spend on his hotel?

A) \$570 B) \$513 C) \$214 D) \$155

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Answers

1. The function f is defined by $f(x) = |x-2| - 3$. If $f(a) = f(0)$ and $a > 0$, what is the value of a?

A) 3 B) 4 C) 5 D) 6

$f(x) = |x-2| - 3$

$f(0) = |0-2| - 3 = |-2| - 3 = 2 - 3 = -1$

$f(a) = |a-2| - 3$

$f(0) = f(a)$

$-1 = |a-2| - 3$

$+3 \qquad +3$

$2 = |a-2|$

$a = 0$ or 4

2. If $\sqrt[5]{a^4} \cdot \sqrt[3]{a^2} = a^n$ for all values of a, what is the value of n?

A) $\frac{8}{15}$ B) $\frac{3}{4}$ C) $\frac{22}{15}$ D) $\frac{11}{4}$

$a^n = \sqrt[5]{a^4} \cdot \sqrt[3]{a^2}$

$a^n = a^{\frac{4}{5}} \cdot a^{\frac{2}{3}} = a^{\frac{4}{5} + \frac{2}{3}}$

$n = \frac{3}{3}\cdot\frac{4}{5} + \frac{2}{3}\cdot\frac{5}{5} = \frac{12}{15} + \frac{10}{15}$

$= \frac{22}{15}$

3. If a and b are positive numbers such that $2b = 3a$, what is the value of $\frac{a+b}{b}$?

$\frac{2b}{3} = \frac{3a}{3}$

$a = \frac{2}{3}b$

$\frac{a+b}{b} = \frac{\frac{2}{3}b + b}{b} = \frac{2}{3} + 1$

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

$= 5/3$

4. Martin spent \$855 on expenses for a trip. The expenses included hotel, rental car, and meals. He spent 50 percent more for the hotel than for the rental car and meals combined. What did Martin spend on his hotel?

A) \$570 B) \$513 C) \$214 D) \$155

50% more $\Rightarrow$ $100 + 50 = 150\%$ $\Rightarrow 1.5$

$H + C + M = 855$

$-H \qquad -H$

$C + M = 855 - H$ $\longrightarrow$ $H = 1.5(C+M)$

$H = 1.5(855 - H)$

$H = 1282.5 - 1.5H$

$+1.5H \qquad +1.5H$

$2.5H = 1282.5$

$\frac{2.5H}{2.5} = \frac{1282.5}{2.5}$

$H = 513$