Some Questions From Khan Academy

No Calculator

Multiple Choice

1. John's seafood restaurant is trying to estimate its profits. John has found that on average, each meal served costs the restaurant $14.56 and earns $17.12. John has also found that on average, each beverage served costs the restaurant $1.20 and earns $5.40. If c customers order a meal, and half of those customers order a beverage, which of the following functions models the restaurant's total profit? Choose 1 answer:

   A) $f(c) = 17.12c - 14.56c + 5.40(1/2\ c) - 1.20(1/2\ c)$

   B) $f(c) = 17.12c - 14.56c + 5.40c - 1.20c$

   C) $f(c) = 14.56c - 17.12c + 1.20c - 5.40c$

   D) $f(c) = 14.56c - 17.12c + 1.20(1/2\ c) - 5.40(1/2\ c)$

2. Sterling silver is an alloy of silver that is 92.5% pure silver. If x grams of sterling silver are mixed with y grams of an 88% silver alloy to produce a 91% silver alloy, which of the following equations correctly relates x and y?

   A) $0.075x + 0.12y = 0$

   B) B. $0.015x - 0.03y = 0$

   C) C. $0.925x + 0.88y = 91$

   D) D. $0.925x + 0.88y = 0.91xy$

3. Dalia makes a cranberry apple punch that contains 20% real juice by mixing x gallons of a cranberry drink with y gallons of an apple drink. The cranberry drink contains 40% real juice and the apple drink contains 10% real juice. Which of the following equations represents the relationship between x and y?

    A) $0.4x + 0.1y = 20$

    B) $0.4x + 0.1y = x + y$

    C) $0.20(x + y) = x + y$

    D) $0.2(x + y) = 0.4x + 0.1y$

4. A zoo monkey is on a diet of fruit and nuts. Fruit has about 12.8 grams (g) of sugar per cup. Nuts have about 4.0g of sugar per cup. The monkey ate 90g of sugar today. Which of the following shows the number of cups of nuts, n(f), the monkey ate today as a function of the number of cups of fruit, f, it ate today?

    A) $n(f) = (-12.8f + 90) / 4$

    B) $n(f) = (-4f + 90) / 12.8$

    C) $n(f) = (-4f + 12.8) / 90$

    D) $n(f) = (-12.8f + 4) / 90$

5. From the age of one to the age of four, Richard's dog Spot gained weight at a linear rate of 5 pounds per year. Spot weighed 8 pounds on his first birthday. Which of the following equations shows Spot's weight, w, at y years of age for $1 \le y \le 4$?

    A) $w = 8 + 5y$

    B) $w = 8 + 5(y - 1)$

    C) $w = 5 + 8y$

    D) $w = 5 + 8(y - 1)$

Calculator OK

Multiple Choice

6. Over the course of 4 years of training for the 100-meter dash, Erica's best time at each end-of-year track meet improved linearly by 0.3 seconds per year. Her best time at her first end-of-year track meet was 13 seconds. Which of the following equations shows Erica's best time, b, after y years of training for $1 \le y \le 4$?

    A) $b = 13 - 0.3(y - 1)$

    B) $b = 13 - 0.3y$

    C) $b = (13/0.3)(y - 1)$

    D) $b = (13/0.3)y$

7. Surya's fence is 340 feet long. It is made from both 6-foot fence panels and 9-foot fence panels Which of the following shows the number of 9-foot fence panels, $\ell(s)$, in Surya's fence as a function of the number of 6-foot fence panels, s, in Surya's fence?

    A) $\ell(s) = 37.\overline{7} - 0.\overline{6}s$

    B) $\ell(s) = 56.\overline{6} - 1.5s$

    C) $\ell(s) = 9s - 6s$

    D) $\ell(s) = 9s + 6s$

8. Ebuka needs to take a taxi, which costs $3.50 plus an additional $3.50 per mile. Which of the following gives the number of miles, $m(d)$, that Ebuka can ride a taxi as a function of the amount of dollars, d, that he has?

    A) $m(d) = (1/3.5)d - 1$

    B) $m(d) = 3.5d - 1$

    C) $m(d) = 3.5d - 3.5$

    D) $m(d) = (1/3.5)d + 3.5$

9. Maria burns about 600 calories per hour jogging and about 450 calories per hour biking if Maria spends x hours per day biking and (4/5) as much time jogging which of the following functions best models the amount of calories C that Maria burns in one day from jogging and biking?

    A) $C(x) = 840x$

    B) $C(x) = 930x$

    C) $C(x) = 960x$

    D) $C(x) = 1050x$

10. A 400-seat public theater collects $5 per theater goer, but does not collect any money from accompanying children under the age of five. If children under five still require seats, which of the following functions best models how many dollars, d, the theater earns during a sold-out show, with c children under the age of five in attendance?

A) $d(c) = 5(400 + c)$

B) $d(c) = 5(400 - c)$

C) $d(c) = 400(5 + c)$

D) $d(c) = 400(5 - c)$