Minitest 4A - MTH 2010

Dr. Graham-Squire, Spring 2017

Name: _____

I pledge that I have neither given nor received any unauthorized assistance on this exam.

_____

(*signature*)

DIRECTIONS

1. Show all of your work and use correct notation, even on multiple choice questions! A correct answer with insufficient work or incorrect notation will lose points.
2. Clearly indicate your answer by putting a box around it.
3. Calculators, cell phones and computers are not allowed on this test.
4. Make sure you sign the pledge.
5. Number of questions = 6. Total Points = 30.

1. (a) (2 points) Solve the equation $\frac{1}{2}x + 3 = \frac{2}{3}x - 2$ for x.

(b) (2 points) The height of a bottle rocket in feet above ground is given by $h = 16(t - 12)(t + 2)$, where $t = 0$ is when the rocket launched and t is time in seconds. How long was the rocket in the air for? Explain your reasoning.

(c) (1 point) Is the number

$$0.01001000100001000001\ldots$$

rational or irrational? Explain.

2. (5 points) Which of the numbers below is a fraction equivalent to $0.\bar{6} = 0.66666\ldots$? Show/explain your work!

(A) $\frac{1}{6}$

(B) $\frac{6}{10}$

(C) $\frac{3}{5}$

(D) $\frac{4}{6}$

3. (5 points) Write two word problems, one that corresponds to each equation:

   (a) $\frac{2}{3}x - 15 = 60$

   (b) $\frac{2}{3}(x - 15) = 60$

4. (5 points) The formula $L = \pi(r_1 + r_2) + 2d$ calculates the length L of a belt around two pulleys whose radii are r_1 and r_2 if the distance between their centers is d. Which of the following formulas could be used to calculate r_1, the radius of one of the pulleys?

(A) $r_1 = \pi(L - 2d) - r_2$

(B) $r_1 = \dfrac{L - 2d}{\pi} - r_2$

(C) $r_1 = \dfrac{L - 2d - r_2}{\pi}$

(D) $r_1 = \dfrac{L - 2d}{\pi r_2}$

5. (5 points) Use the problem below to answer the question that follows.

Dominic bought some SuperCat dolls at the toy store. The store charged 4% sales tax and the total came to \$156. Without the tax, Dominic could have bought 3 more SuperCat dolls. How many SuperCat dolls did Dominic buy?

If p represents the price of one SuperCat doll, in which of the following equations does x represent the answer to the question above?

(A) $1.04p(x+3) = 156$

(B) $0.96px = p(x+3)$

(C) $0.96p(x+3) = 156$

(D) $1.04px = p(x+3)$

6. (5 points) Ava picked twice as many roses as Kinsley. Rafi picked 15 more roses than Kinsley did. Total, the three children picked 207 roses. How many roses did each of them pick? Explain your reasoning and/or show your work!

Extra Credit(2 points) Originally, Ronan had 5 times as many balls as Dominic had. Then Ronan threw 57 balls of his balls into the ball pit, and Dominic threw 5 of his balls into the ball pit. Now they have the same number of balls. How many did Ronan have initially? For 1 point, solve this problem. For two points, set it up as a strip diagram *and* solve the problem.