Appendix A

Pre-test survey

This survey will be used to gather initial study data. Thank you for your interest in this project!

What is your Study ID? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What grade are you going into this coming school year (2021-2022)?

How old are you?

* 14
* 15
* 16
* 17
* 18

What is your gender?

* Female
* Male
* Other:\_\_\_\_\_\_\_\_\_\_\_

What is your race?

* Asian
* Black or African American
* Native Hawaiian or other Pacific Islander
* White or Caucasian
* Other

What range do your math grades generally fall into?

* A (93-100)
* B (85-92)
* C (75-84)
* D (70-74)
* F (50-69)

How many hours per day do you listen to music?

* 0-1 hours
* 1-3 hours
* 3-5 hours
* 5+ hours

Which, if any, of the following purposes other than entertainment have you listened to music for?

* Aiding focus
* Aiding memory
* Calming before a stressful event
* None

Given the option (like in online school) do you listen to music while testing?

* Yes
* No
* Sometimes

Do you usually listen to music while studying?

* Yes
* No (skip next question)

What genres of music do you typically listen to while studying and/or testing?

* Rock
* Pop
* Jazz
* Classical
* Rap
* Folk
* Other (instrumental)
* Other (vocal

Appendix B

Math Test

Please take this math test as you have been instructed to (with or without music) and do not work on the whole test for longer than allotted 30 minutes.

What is your Study ID?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Marcus’s favorite casserole recipe requires 3 eggs and makes 6 servings. Marcus will modify the recipe by using 5 eggs and increasing all other ingredients in the recipe proportionally. What is the total number of servings the modified recipe will make?

* 6
* 8
* 10
* 12
* 15

2. The 35-member History Club is meeting to choose a student government representative. The members decide that the representative, who will be chosen at random, CANNOT be any of the 3 officers of the club. What is the probability that Hiroko, who is a member of the club but NOT an officer, will be chosen?

* 0
* 4/35
* 1/35
* 1/3
* 1/32

3. The length of a rectangle is 5 inches longer than the width. The perimeter of the rectangle is 40 inches. What is the width of the rectangle, in inches?

* 7.5
* 8
* 15
* 16
* 17.5

4. The average of 5 distinct scores has the same value as the median of the 5 scores. The sum of the 5 scores is 420. What is the sum of the 4 scores that are NOT the median?

* 315
* 320
* 336
* 350
* 360

5. What is the slope of the line through (−2,1) and (2,−5) in the standard (x,y) coordinate plane?

* 3/2
* 1
* -1
* -3/2
* 4

6. What is the period of the function f(x) = csc(4x) ?

* π
* 2π
* 4π
* π/4
* π/2

7. A room has a rectangular floor that is 15 feet by 21 feet. What is the area of the floor in square YARDS ?

* 24
* 35
* 36
* 105
* 144

8. The list of numbers 41, 35, 30, X, Y, 15 has a median of 25. The mode of the list of numbers is 15. To the nearest whole number, what is the mean of the list?

* 20
* 25
* 26
* 27
* 30

9. The sum of 2 positive numbers is 151. The lesser number is 19 more than the square root of the greater number. What is the value of the greater number minus the lesser number?

* 19
* 66
* 85
* 91
* 121

10. The number of decibels, d, produced by an audio source can be modeled by the equation d = 10 log(I/K), where I is the sound intensity of the audio source and K is a constant. How many decibels are produced by an audio source whose sound intensity is 1,000 times the value of K ?

* 4
* 30
* 40
* 100
* 10,000

11. If 7 + 3x = 22, then 2x = ?

* 5
* 10
* 12
* 14
* 58/3

12. To keep up with rising expenses, a motel manager needs to raise the $40.00 room rate by 22%. What will be the new rate?

* $40.22
* $42.20
* $48.00
* $48.80
* $62.00

13. As a salesperson, your commission is directly proportional to the dollar amount of sales you make. If your sales are $800, your commission is $112. How much commission would you earn if you had $1,400 in sales?

* $210
* $196
* $175
* $128
* $64

14. In any parallelogram ABCD, it is always true that the measures of ∠ABC and ∠BCD:

* add up to 180°.
* add up to 90°.
* are each greater than 90°.
* are each 90°.
* are each less than 90°.

15. What is the least common denominator for adding the fractions 4/15, 1/12, and 3/8?

* 40
* 120
* 180
* 480
* 1,440

16. In a bag of 400 jelly beans, 25% of the jelly beans are red in color. If you randomly pick a jelly bean from the bag, what is the probability that the jelly bean picked is NOT one of the red jelly beans?

* 1/2
* 1/4
* 3/4
* 1/16
* 15/16

17. If x > 1, then which of the following has the LEAST value?

* √(x)
* √(2x)
* √ (x · x)
* x√x
* x · x

18. What polynomial must be added to x^2 – 2x + 6 so that the sum is 3x^2 + 7x ?

* 4x^ + 5x + 6
* 3x^2 + 9x + 6
* 3x^2 + 9x – 6
* 2x^2 + 9x – 6
* 2x^2 – 5x + 6

19. What is the slope of any line parallel to the line 8x + 9y = 3 in the standard (x,y) coordinate plane?

* -8
* -8/9
* 8/3
* 3
* 8

20. When y = x^2, which of the following expressions is equivalent to –y ?

* (–x)^2
* –x^2
* –x
* x^–2
* x

21. The lengths of the corresponding sides of 2 similar right triangles are in the ratio of 2:5. If the hypotenuse of the smaller triangle is 5 inches long, how many inches long is the hypotenuse of the larger triangle?

* 2
* 2.5
* 7
* 10
* 12.5

22. Meg pounded a stake into the ground. When she attached a leash to both the stake and her dog’s collar, the dog could reach 9 feet from the stake in any direction. Using 3.14 for π, what is the approximate area of the lawn, in square feet, the dog could reach from the stake?

* 28
* 57
* 113
* 254
* 283

23. Television screen sizes are the diagonal length of the rectangular screen. Hector recently changed from watching a television with a 13-inch screen to a television with a similar 19-inch screen. If a boxcar appeared 8 inches long on the 13-inch screen, how long, to the nearest inch, will it appear on the 19-inch screen?

* 10
* 12
* 14
* 16
* 18

24. If 2x^2 + 6x = 36, what are the possible values of x ?

* –12 and 3
* –6 and 3
* –3 and 6
* –3 and 12
* 12 and 15

25. Which of the following figures in a plane separates it into half-planes?

* A line
* A ray
* An angle
* A point
* A line segment

26. Which of the following expresses the number of meters a contestant must travel in a 3-lap race where the course is a circle of radius R meters?

* 3R
* 3πR
* 3πR^2
* 6R
* 6πR

27. The ABC Book Club charges a $40 monthly fee, plus $2 per book read in that month. The Easy Book Club charges a $35 monthly fee, plus $3 per book read in that month. For each club, how many books must be read in 1 month for the total charges from each club to be equal?

* 1
* 4
* 5
* 6
* 75

28. In Cherokee County, the fine for speeding is $17 for each mile per hour the driver is traveling over the posted speed limit. In Cherokee County, Kirk was fined $221 for speeding on a road with a posted speed limit of 30 mph. Kirk was fined for traveling at what speed, in miles per hour?

* 13
* 17
* 43
* 47
* 60

29. Armin is trying to decide whether to buy a season pass to his college basketball team’s 20 home games this season. The cost of an individual ticket is $14, and the cost of a season pass is $175. The season pass will admit Armin to any home basketball game at no additional cost. What is the minimum number of home basketball games Armin must attend this season in order for the cost of a season pass to be less than the total cost of buying an individual ticket for each game he attends?

* 8
* 9
* 12
* 13
* 20

30. Laura plans to paint the 8-foot-high rectangular walls of her room, and before she buys paint she needs to know the area of the wall surface to be painted. Two walls are 10 feet wide, and the other 2 walls are 15 feet wide. The combined area of the 1 window and the 1 door in her room is 60 square feet. What is the area, in square feet, of the wall surface Laura plans to paint?

* 200
* 340
* 360
* 390
* 400