

# Algebra Round

45 minutes

Please put all answers on the provided answer sheet, units are not required.

- 1) The number of streams after Taylor Swift released Red (Taylor's Version) per day can be modeled by the equation  $S = -t + 100$ , where  $t$  is the number of days after her release. After how many days will the number of streams reach zero? (1 point)
- 2) Vivian can make a paper ring in 4 hours. Weining can make a paper ring in 6 hours. Amy can make a paper ring in 8 hours. If all 3 are making paper rings together, how many hours will it take them to make 13 paper rings? (2 points)
- 3) A red scarf costs \$13, and an All Too Well book costs \$14. If Jake spent \$94 total, and bought 7 items, how many scarves did he buy? (2 points)
- 4) The number of chai cookies that Taylor Swift can make per hour is modeled by the equation  $y = \frac{-3}{5}x + 6$ . At what time will Taylor Swift be unable to make any more chai cookies? (1 point)
- 5) 4 years ago, Taylor Swift's age was  $\frac{3}{4}$  of Jake Gyllenhaal's age. In 5 years, Taylor Swift's age will be  $\frac{1}{2}$  of Jake Gyllenhaal's age. How old is Taylor Swift now? (1 point)
- 6) Taylor Swift has a certain whole number of blank spaces to write names in. If you add 4 to the amount of blank spaces, multiply it by 3, divide by 4, and subtract 2, you get 22. What was the original amount of blank spaces? (1 point)
- 7) Taylor Swift is trying to get out of the woods but is being chased by Harry Styles, who started 6 miles behind her. She is running at 6 miles per hour, but Harry Styles is running at 8 miles an hour. How many hours will it take for Harry Styles to catch up with Taylor Swift? (1 point)
- 8) Taylor Swift's tears are ricocheting at a rate of tears per second that can be modeled by the equation  $n = -2t^2 + 18t - 36$ . At what time will the rate of Taylor Swift's tears ricocheting reach its peak? (2 points)
- 9) The amount of pictures that Taylor Swift had burned is expressed the value of  $x^2 - y^2$  when  $x + y = 12$  and  $x - y = 11$ . How many pictures have been burned by Taylor Swift? (2 points)
- 10) On Taylor Swift's Christmas tree farm, there are 341,25X Christmas trees. If Taylor plants the trees in rows of 9, what is the value of X (assuming all the rows are full)? (2 points)