Quick-Click Smackdown

Questions for the Quick-Click Smackdown will come from Algebra I and Algebra II. All questions will be multiple choice with a short time limit. Students will be eliminated in an initial round based upon their overall performance on a group of questions. In subsequent rounds, any wrong answer will lead to immediate elimination, until the winner of the Quick-Click Smackdown is determined. In the event that all of the remaining students miss a question, another question will be given. When only two students remain, the quickest correct response will determine the winner.

Sample questions are given below:

1. What is the slope of the line $2x - 4y = 6$?

2. What is the vertex of the parabola $f(x) = x^2 - 4x + 4$?

3. What is the length of the line segment from (5, 3) to (9, 7)?

4. Given $f(x) = 5x + 15$, what is x when $y = -20$?

5. Given $2x + 3y = 5$ and $2x + y = -9$, which of the following statements is true?

   A. The lines are parallel.
   B. The lines intersect at (2, 7).
   C. It's only one line, repeated twice.
   *D. The lines intersect at (–8, 7).
   E. The lines are perpendicular.

6. Find a value t so that points (0, 2) and (12, t) are 13 units apart.

7. Solve for x: $\dfrac{x}{5-x} = \dfrac{-2}{11-x}$.

8. Give the smallest value of x solving $2x^2 - 8x = 24 + 4x$.

9. Find the equation of the line that has the same x and y intercepts as $x^2 + y^2 + 4x - 4y + 4 = 0$.

10. Simplify $\dfrac{\left(x^{-2} + 2x\right)^{-1}}{x^2}$.

11. Simplify $|x - 6| + |x - 7|$ given that $6 < x < 7$.

12. Simplify $\dfrac{6x\sqrt{1-x^2}-3x^2\left(1-x^2\right)^{3/2}}{\left(1-x^2\right)^{1/2}}$.

13. Give the average of the solutions to $x^3+x^2=3x$.

14. Given that all real numbers are in the domains and ranges of f and f^{-1}, and that $f^{-1}(1)=-4$, solve the equation $2+f(3x+5)=3$.

15. Specify the y-intercept for $f(x)=\begin{cases} x^2, & x<-3 \\ x-5, & -3\le x\le 3 \\ x+2, & x>3 \end{cases}$

16. Simplify $\left(\sqrt{x+x+1}+\sqrt{a-x+1}\right)\left(\sqrt{x+x+1}-\sqrt{a-x+1}\right)$.