Name:

5-a-day ACT prep #14

Solve each problem, show your work, and then choose the correct answer.

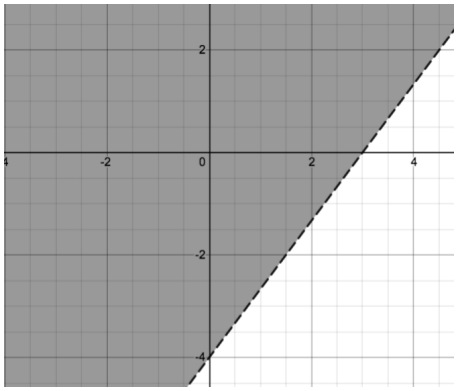
Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

1. Which inequality describes the graph pictured below?



A. $4x + 3y > 12$
B. $4x + 3y < 12$
C. $8x - 6y < 24$
D. $8x - 6y > 24$
E. None of these

2. Which of the following expressions is equivalent to $\frac{x^2-4}{x^2+6x+8}$?

F. $-\frac{1}{2}$
G. $\frac{-1}{6x+2}$
H. $\frac{-4}{6x+8}$
I. $\frac{x-2}{x+4}$
J. None of these

3. Which of the following expressions are equivalent to $(3n-5)^2$?

A. $6n^2 - 25$
B. $9n^2 - 25$
C. $9n^2 - 15n + 25$
D. $9n^2 - 30n + 25$
E. None of these

4. A circle is tangent to the y-axis at the point $(0, -5)$ and tangent to the x-axis at the point $(5, 0)$. Which of the following equations describes the circle?

A. $\frac{(x+5)^2}{25} + \frac{(y-5)^2}{25} = 1$
B. $\frac{(x-5)^2}{25} + \frac{(y+5)^2}{25} = 1$
C. $\frac{(x+5)^2}{5} + \frac{(y-5)^2}{5} = 1$
D. $\frac{(x-5)^2}{5} + \frac{(y+5)^2}{5} = 1$
E. None of these

5. Which of the following expressions is equivalent to $(3x^2y)^2 \cdot (9xy)^{-1} \cdot (x^3y)^{-1}$?

A. $\frac{1}{3}$
B. $\frac{1}{3x^2y}$
C. $\frac{27}{x^2y}$
D. 1
E. None of these