

Name:

5-a-day ACT prep #14

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

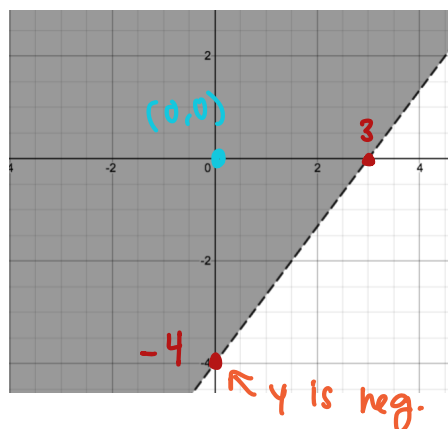
Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

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

$0 < 24$

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

$$\frac{(x+2)(x-2)}{(x+4)(x+2)}$$

$$\frac{(x-2)}{(x+4)}$$

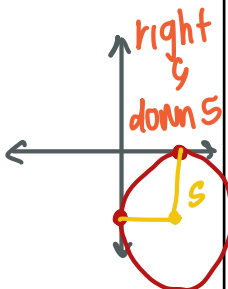
3. Which of the following expressions are equivalent to $(3n - 5)^2$?

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

$$9n^2 - 30n + 25$$

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

$$9x^4y^2 \cdot \frac{1}{9xy} \cdot \frac{1}{x^3y}$$

$$\frac{9x^4y^2}{9x^4y^2}$$