The Weekly Rigor

SAT Math Test Problem Children: Randomized Problem Set 2
(Part 1)

1.

$$5x^2 + 7x - 6 = 0$$

If r and s are two solutions of the equation above and $r > s$, what is the value of $r - s$?

2.

$$y = x + 5$$
$$3x - 4y = 10$$

The system of equations above consists of two equations, and the graph of each equation in the xy-plane is a line. Which of the following statements is true about these two lines?
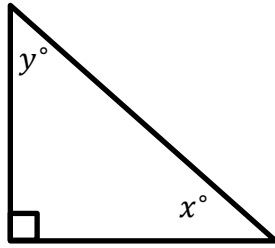
A) The lines are parallel.

B) The lines are the same.

C) The lines are perpendicular.

D) The lines intersect at $(-30, -25)$.

3.

$$\sqrt{x - a} = x - 4$$

If $a = 4$, what is the solution set of the equation above?

4.

In the triangle above, the cosine of $x°$ is 0.6. What is the sine of $y°$?

5.

$$\frac{5 - 2i}{4 - 3i}$$

If the expression above is rewritten in the form $a + bi$, where a and b are real numbers, what is the value of a? (Note: $i = \sqrt{-1}$)

6. If $a = 7\sqrt{2}$ and $3a = \sqrt{2x}$, what is the value of x ?

7.

Note: Figures not drawn to scale.

The angles shown above are acute and $\sin(a°) = \cos(b°)$. If $a = 6k - 18$ and $b = 4k - 19$, what is the value of k ?

A) 12.7
B) 21.7
C) 3.5
D) 4.5