The Weekly Rigor

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

1. What is the sum of all values of m that satisfy $3m^2 - 12m + 3 = 0$?

2.

Note: Figures not drawn to scale.

The angles shown above are acute and $\sin(a°) = \cos(b°)$. If $a = 2k - 20$ and $b = 8k - 15$, what is the value of k ?

A) 3.5
B) 4.5
C) 12.5
D) 21.5

3.

$$(x + 4)^2 - 9 = 0$$

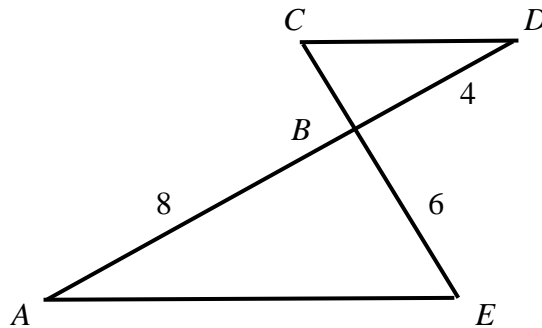What is a value of x that satisfies the equation above?

4.

$$kx - 2y = 5$$
$$3x - 4y = 8$$

In the system of equations above, k is a constant and x and y are variables. For what value of k will the system of equations have no solution?

5. If $f(x) = -3x + 6$, what is $f(-2x)$ equal to?

6.

In the figure above, $\overline{AE} \parallel \overline{CD}$ and segment AD intersects segment CE at B. What is the length of segment CE ?

7. If $a = 5\sqrt{2}$ and $3a = \sqrt{2x}$, what is the value of x ?

8.

$$ax + by = 9$$
$$3x + 4y = 54$$

In the system of equations above, a and b are constants. If the system has infinitely many solutions, what is the value of $\frac{a}{b}$?