The Weekly Rigor

No. 141

2.

"A mathematician is a machine for turning coffee into theorems."

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

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



Note: Figures not drawn to scale.

The angles shown above are acute and $sin(a^\circ) = cos(b^\circ)$. 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 $\frac{a}{b}$?

"Only he who never plays, never loses."

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