

The Weekly Rigor

No. 150

“A mathematician is a machine for turning coffee into theorems.”

May 6, 2017

SAT Math Test Problem Children: Randomized Problem Set 2

(Part 3)

16. In a right triangle, one angle measures x° , where $\sin x^\circ = \frac{4}{5}$. What is $\cos(90^\circ - x^\circ)$?

17. What are the solutions to the equation

$$2x^2 - 32 = 0 ?$$

18. If $f(x) = -2x + 7$, what is $f(-4x)$ equal to?

19. Which of the following equations represents a line that is parallel to the line with equation $y = 2x + 3$?

- A) $6x + 4y = 3$
- B) $8x - 4y = 7$
- C) $8x + 2y = 7$
- D) $x + 6y = 10$

20.

$$x^2 - \frac{k}{4}x = 4p$$

In the quadratic equation above, k and p are constants. What are the solutions for x ?

- A) $x = \frac{k}{4} \pm \frac{\sqrt{k^2+4p}}{4}$
B) $x = \frac{k}{2} \pm \frac{\sqrt{k^2+4p}}{4}$
C) $x = \frac{k}{8} \pm \frac{\sqrt{k^2+256p}}{8}$
D) $x = \frac{k}{4} \pm \frac{\sqrt{k^2+256p}}{4}$

21.

$$f(x) = \frac{5}{2}x + b$$

In the function above, b is a constant. If $f(6) = 8$, what is the value of $f(-4)$?

22. For $i = \sqrt{-1}$, what is the sum $(5 + 2i) + (7 + 6i)$?

23.

$$\begin{aligned} 2x + 3y &= 16 \\ 3x - 2y &= -2 \end{aligned}$$

If (x, y) is a solution to the system of equations above, what is the value of $x - y$?

- A) 14
B) -18
C) 0
D) -2

“Only he who never plays, never loses.”