SAT Prep Course

Name _____

Weird Symbols

Per/Sec. _____ Date _____

_____ 1. If $x * y = \frac{1}{2}xy^2$, then $3 * 4 =$

a) 3 b) 6 c) 24 d) 36 e) 72

_____ 2. If $a \blacktriangleright b = a^2b^3$, then $2 \blacktriangleright (-3) =$

a) -6 b) 72 c) -72 d) 108 e) -108

_____ 3. The operation $x \bigstar y$ is defined by $\frac{x-y}{x} + \frac{x-y}{y}$. What is the value of $6 \bigstar 4$?

a) $\frac{1}{6}$ b) $\frac{1}{5}$ c) $\frac{2}{5}$ d) $\frac{1}{2}$ e) $\frac{5}{6}$

_____ 4. If $a \natural b = a^2 + b^2$, then $(1 \natural 1) \natural 1 =$

a) 1 b) 2 c) 3 d) 4 e) 5

_____ 5. If $q \diamondsuit t = q^t - 1$, then $2 \diamondsuit (2 \diamondsuit 3) =$

a) 12 b) 127 c) 181 d) 255 e) 331

_____ 6. If $a * b = a^2 - b^2$, what could be a value for a so that $a * 2 = 21$?

a) -5 b) $\sqrt{19}$ c) $2\sqrt{5}$ d) 25

e) It cannot be determined from the information given.

_____ 7. If $x \triangleright y = \frac{1}{2}xy$, then $7 \triangleright (4 \triangleright 3) =$

a) 13 b) 18 c) 21 d) 36 e) 42

_____ 8. If $\textcircled{x} = \frac{1}{4}x$, for which of the following values of x does $\textcircled{x} = 2$?

a) $\frac{1}{2}$ b) 2 c) 8 d) 16 e) 32

_____ 9. If $\boxed{a} = 2a + 1$, for which of the following values of a does $\boxed{a} = \frac{5}{3}$?

a) $\frac{1}{3}$ b) $\frac{1}{2}$ c) $\frac{3}{5}$ d) $\frac{2}{3}$ e) $\frac{3}{2}$

_____ 10. If $\textcircled{x} = (x+1)^2 - (x-1)^2 + 1$, what is the value of $\textcircled{5}$?

a) 1 b) 10 c) 11 d) 15 e) 21

_____ 11. If the operation $\heartsuit n$ is defined as $\heartsuit n = n(n+1)$, then $(\heartsuit 0)(\heartsuit 1)(\heartsuit 2) =$

a) 0 b) 8 c) 9 d) 12 e) 15

_____ 12. The operation $\boxed{a}$ is defined as $a - 2$. The operation $\textcircled{a}$ is defined as $2a$. Find $\textcircled{a} - \boxed{a}$.

a) $2a - 2$ b) $a - 2$ c) $2a - 4$ d) $3a - 2$ e) $a + 2$