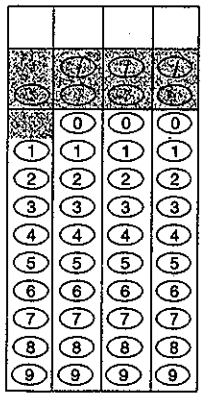
SAT Practice 4: Working with Roots

1. The square root of a certain positive number is twice the number itself. What is the number?

(A) $\frac{1}{8}$ (B) $\frac{1}{4}$ (C) $\frac{3}{8}$

(D) $\frac{1}{2}$ (E) 1

2. If $\frac{1}{2}x < \sqrt{x} < x$, what is one possible value of x?



3. If $a^2 + 1 = 10$ and $b^2 - 1 = 15$, what is the greatest possible value of $a - b$?

(A) -3 (B) -1 (C) 3
(D) 5 (E) 7

4. If $3y = \sqrt{\frac{2}{y}}$ then $y^3 =$

(A) $\frac{2}{9}$ (B) $\frac{4}{9}$ (C) $\frac{2}{3}$

(D) $\frac{4}{3}$ (E) 18

5. If $x^2 = 4$, $y^2 = 9$, and $(x - 2)(y + 3) \neq 0$, then $x^3 + y^3 =$

(A) -35 (B) -19 (C) 0
(D) 19 (E) 35

6. If m and n are both positive, then which of the following is equivalent to $\frac{2m\sqrt{18n}}{m\sqrt{2}}$?

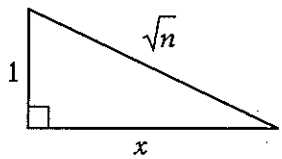
(A) $3m\sqrt{n}$
(B) $6m\sqrt{n}$
(C) $4\sqrt{n}$
(D) $6\sqrt{n}$
(E) $8\sqrt{n}$

7. A rectangle has sides of length $\sqrt{a}$ cm and $\sqrt{b}$ cm. What is the length of a diagonal of the rectangle?

(A) $\sqrt{a} + \sqrt{b}$ cm
(B) $a + b$ cm
(C) $\sqrt{a+b}$ cm
(D) $\sqrt{a^2 + b^2}$ cm
(E) $\sqrt{ab}$ cm

8. The area of square A is 10 times the area of square B. What is the ratio of the perimeter of square A to the perimeter of square B?

(A) $\sqrt{10}:4$ (B) $\sqrt{10}:2$
(C) $\sqrt{10}:1$ (D) $4\sqrt{10}:1$
(E) 40:1



9. In the figure above, if n is a real number greater than 1, what is the value of x in terms of n?

(A) $\sqrt{n^2 - 1}$
(B) $\sqrt{n-1}$
(C) $\sqrt{n+1}$
(D) $n - 1$
(E) $n + 1$