SAT Math Practice

Choose one answer per question. Circle A, B, C, or D.

1. An aquarium contains 11 liters of water. After three equal buckets of water are added, it contains 47 liters. How many liters of water did each bucket contain?
   A. 12 liters
   B. 9 liters
   C. 15 liters
   D. 18 liters

2. A computer model takes $T(n) = 9 \times 2^n$ seconds to render a scene at setting n. How many seconds does it take at setting n = 3?
   A. 54 seconds
   B. 27 seconds
   C. 72 seconds
   D. 81 seconds

3. A map uses 1.5 centimeters for every 6 kilometers on the ground. How far apart are two markers whose straight-line distance is 4 centimeters on the map?
   A. 9 kilometers
   B. 16 kilometers
   C. 12 kilometers
   D. 24 kilometers

4. A right triangle has side lengths of 12, 16, and 20. What is the cosine of its smaller acute angle?
   A. 5/4
   B. 3/5
   C. 3/4
   D. 4/5

5. Which expression equals $\sqrt{(72u^2)}$ for every positive value of u?
   A. $36u\sqrt{2}$
   B. $6u\sqrt{2}$
   C. $6u^2\sqrt{2}$
   D. $12u\sqrt{2}$

6. A 33-minute rehearsal has six blocks. Each block is either a 7-minute run-through or a 4-minute feedback session. How many run-throughs are in the rehearsal?

A. 3
B. 2
C. 4
D. 5

7. The functions p and q are linear. The recorded values are p(2) = 19, p(5) = 34, q(2) = 20, and q(6) = 32. By how much does the slope of p exceed the slope of q?

A. 8
B. 1
C. 3
D. 2

8. At 9 a.m. and 10 a.m. a kiosk served 47 and 46 visitors. Model A predicted 44 and 48. Model B predicted 49 and 41. Which model was closer to the observed count at each time, in order?

A. Model A at 9 a.m. and Model B at 10 a.m.
B. Model A at both times
C. Model B at 9 a.m. and Model A at 10 a.m.
D. Model B at both times

9. Two canisters are right circular cylinders. Canister B has twice the radius and three-fourths the height of canister A. What is the ratio of B's volume to A's volume?

A. 3 to 1
B. 3 to 2
C. 9 to 4
D. 4 to 1

10. For a quadratic function g, g(2) and g(10) both equal 7. If g(5) = 15, what is g(7)?

A. 23
B. 7
C. 11
D. 15

11. A school orders exactly 28 display stands. Small stands cost $4, large stands $7. The order must include at least 7 large stands and cost at most $148. Which range gives all possible counts of large stands?

A. 7 through 15
B. 7 through 11
C. 7 through 12
D. 12 through 28

12. Which numbers are real solutions of $\sqrt{(4x + 13)} = x - 2$?

A. -1 only
B. 9 only
C. -1 and 9
D. No real solutions

13. For which value of k do the graphs $y = (x - 4)^2 + 3$ and $y = k - 2x$ meet at exactly one point?

A. 19
B. 3
C. 11
D. 10

14. Lakeview estimates 63% use library pickup, with a margin of 5 percentage points. Cedar Park estimates 42% do not use it, with a margin of 4 points. Where do the implied ranges for pickup use overlap?

A. 58% through 62%
B. 54% through 58%
C. 62% through 68%
D. 38% through 46%

15. Points $(-5, 2)$ and $(3, 8)$ are opposite ends of a circle's diameter. Which equation describes the circle?

A. $(x + 1)^2 + (y - 5)^2 = 100$
B. $(x - 1)^2 + (y + 5)^2 = 25$
C. $(x + 1)^2 + (y - 5)^2 = 25$
D. $(x + 1)^2 + (y - 5)^2 = 5$