

9. It takes Clea 60 seconds to walk down an escalator when it is not operating, and only 24 seconds to walk down the escalator when it is operating. How many seconds does it take Clea to ride down the operating escalator when she just stands on it?

(A) 36 (B) 40 (C) 42 (D) 48 (E) 52

10. What is the area of the polygon whose vertices are the points of intersection of the curves $x^2 + y^2 = 25$ and $(x - 4)^2 + 9y^2 = 81$?

(A) 24 (B) 27 (C) 36 (D) 37.5 (E) 42

11. In the equation below, A and B are consecutive positive integers, and A , B , and $A + B$ represent number bases:

$$132_A + 43_B = 69_{A+B}.$$

What is $A + B$?

(A) 9 (B) 11 (C) 13 (D) 15 (E) 17

15. Jesse cuts a circular paper disk of radius 12 along two radii to form two sectors, the smaller having a central angle of 120 degrees. He makes two circular cones, using each sector to form the lateral surface of a cone. What is the ratio of the volume of the smaller cone to that of the larger?

(A) $\frac{1}{8}$ (B) $\frac{1}{4}$ (C) $\frac{\sqrt{10}}{10}$ (D) $\frac{\sqrt{5}}{6}$ (E) $\frac{\sqrt{10}}{5}$

17. Square $PQRS$ lies in the first quadrant. Points $(3, 0)$, $(5, 0)$, $(7, 0)$, and $(13, 0)$ lie on lines SP , RQ , PQ , and SR , respectively. What is the sum of the coordinates of the center of the square $PQRS$?

(A) 6 (B) 6.2 (C) 6.4 (D) 6.6 (E) 6.8