SAT Maths Sample Paper 8

$$7 - 8(x - 2) = ax + 5$$

In the equation shown above, a is a constant. Which of the following values of a results in an equation with exactly one solution?

(A) 7
(B) 8
(C) Neither (A) nor (B)
(D) Both (A) and (B)

A dress on sale in a shop is marked at D dollars. During the discount sale, its price is reduced by 15%. Staff are allowed a further 10% reduction on the discounted price. If a staff member buys the dress, what will she have to pay in terms of D?

(A) 0.75D
(B) 0.76D
(C) 0.765D
(D) 0.775D

If $4r + 3s = 7$, $2r + s = 1$, and $2r + 2s = t - 4$, what is the value of t?

(A) 6
(B) 8
(C) 10
(D) 12

A 3 by 4 rectangle is inscribed in a circle. What is the circumference of the circle?

(A) 2.5π
(B) 3π
(C) 5π
(D) 6

8. Steven can mix 20 drinks in 5 minutes, Sue can mix 20 drinks in 10 minutes, and Jack can mix 20 drinks in 15 minutes. How much time will it take for all 3 of them to work together to mix 20 drinks?

   (A) 2 minutes and 44 seconds
   (B) 2 minutes and 58 seconds
   (C) 3 minutes and 10 seconds
   (D) 3 minutes and 26 seconds

9. In a sports club with 30 members, 17 members play badminton, 19 members play tennis, and 2 members do not play neither. How many members play both badminton and tennis?

   (A) 7
   (B) 8
   (C) 9
   (D) 10

10. Half the people on a bus get off at each stop after the first, and no one gets on after the first stop. If only one person gets off at stop number 7, how many people got on at the first stop?

    (A) 128
    (B) 64
    (C) 32
    (D) 16

11. In 2000, approximately 19.5% of seats in a national parliament were held by women. Between 2000 and 2014, this percentage increased at a constant rate of about 3 percentage points every 4 years. If t is the year when approximately 28% of the seats in the national parliaments were held by women, which of the following equations best models the situation?

(A) $19.5 + 3t = 28$

(B) $19.5 + \frac{3}{4}t = 28$

(C) $19.5 + 3(t - 2000) = 28$

(D) $19.5 + \frac{3}{4}(t - 2000) = 28$

The minimum value of $f(x) = x^2 + x + 4$ is

(A) 2

(B) -2

(C) 4

(D) $\frac{15}{4}$

What is the reciprocal of $6 + i$?

(A) $\frac{1}{6}$

(B) $\frac{6-i}{35}$

(C) $\frac{6+i}{36}$

(D) $\frac{6-i}{37}$

What is the domain of $f(x) = \sqrt{9 - x^2}$?

(A) $x \leq 3$
(B) $x \geq -3$
(C) $-3 \leq x \leq 3$
(D) $x \leq 3$ or $x \geq -3$