

QUESTIONNAIRE Mathematics Test 3. Population 3b and Intermediate Population

QUESTION 1

If, in the figure below, PQ and RS are intersecting straight lines, then $x + y$ is equal to

[Picture]

- A. 15
- B. 30
- C. 60
- D. 180
- E. 300

QUESTION 2-3 / 2

Use the graph below in answering the two following questions.

[Picture]

2. Three hours after starting, car A is how many miles ahead of car B ?

- A. 2 B. 10 C. 15 D. 20 E. 25

3. How much longer does it take car B to go 50 miles than it does for car A to go 50 miles?

- A. 1 hour 15 minutes D. 2 hours 30 minutes
B. 1 hour 30 minutes
C. 2 hours E. 2 hours 45 minutes

QUESTION 4

There are 227 boys in a school. Every boy in the school belongs to either the music club or the sports club, and some boys belong to both clubs. The music club has 120 members, and 36 of these are also members of the sports club. What is the total membership of the sports club ? _____

QUESTION 5

The length of the circumference of a circle with centre at O is 24 and the length of arc RS is 4. What is the measure in degrees of the central angle ROS?

[Picture]

- A. 24 D. 60
B. 30 E. 90
C. 45

QUESTION 9

The lengths of the sides of triangle XYZ are 4, 7 and 10. If a similar triangle has a perimeter of 147, what is the length of its shortest side ?

QUESTION 10

A factory produces m units per week. How many units per week will it produce after production is increased p per cent?

- A. $100p + m$ C. $\frac{m + mp}{100}$ E. $\frac{p}{100} + m$
B. $100m + mp$ D. $m + \frac{mp}{100}$

QUESTION 11

Which of the following is true for any parallelogram ABCD which has an acute angle at B and diagonals AC and BD?

- A. $AB < BC$ D. $AC < BD$
B. $AB = BC$
C. $AB > BC$ E. None of them

QUESTION 12

The equation of the line shown in the graph is

- A. $x + 4y = 4$
B. $2x - y = 4$
C. $2x = y - 2$ [Picture]
D. $x - 4y + 2 = 0$
E. $4x - y = 2$

QUESTION 13

Which of the following is (are) true?

- I. $(53 \times 73) \times 17 = 53 \times (73 \times 17)$
II. $133 \times (78 + 89) = (133 \times 78) + 89$
III. $133 \times (78 + 89) = (133 \times 78) + (133 \times 98)$
A. I only D. I and II only
B. II only
C. III only E. I and III only

QUESTION 17

What are the values of x for which the inequality

$$5x + \frac{5}{3} < 2x - \frac{2}{3}$$

is true ?

- A. $x < -\frac{7}{9}$ C. $x > 0$ E. $x > -\frac{9}{3}$
- B. $x < -\frac{1}{3}$ D. $x > -\frac{7}{3}$

QUESTION 18

In the solution of the following system of equations

$$\begin{array}{r} 2x + y = 7 \\ x - 4y = 4 \end{array}$$

the value of y is equal to

- A. $-\frac{5}{3}$ B. -9 C. $\frac{1}{9}$ D. $-\frac{1}{9}$ E. $\frac{5}{3}$

QUESTION 19

Which of the following numbers in base two is (are) even ?

- I. 110011
- II. 110010
- III. 110101
- IV. 100100

- A. I only D. II and IV only
- B. III only
- C. I and III only E. I, III and IV

QUESTION 20

The symbol $P \cap Q$ represents the intersection of sets P and Q and the symbol $P \cup Q$ represents the union of sets P and Q. Which of the following represents the shaded portion of the diagram below?

[Note: the character \cap denotes the character for an intersection of sets]
 [: the character \cup denotes the character for a union of sets]

- A. $(X \cap Y) \cup Z$ C. $X \cap (Y \cup Z)$
- B. $X \cup (Y \cap Z)$ D. $(X \cap Y) \cap Z$
- E. $(X \cup Y) \cap Z$