

QUESTIONNAIRE Mathematics Test B. Population 1a and 1b

QUESTION 1

$\frac{2}{5} + \frac{3}{8}$ is equal to

- A. $\frac{5}{13}$ B. $\frac{5}{40}$ C. $\frac{6}{40}$ D. $\frac{16}{15}$ E. $\frac{31}{40}$

QUESTION 2

Peter and Paul decided to start saving money. Peter can save 3 shillings each month and Paul can save 5 shillings. At this rate, after how many months will Paul have exactly 10 shillings more than Peter?

- A. 2 B. 3 C. 4 D. 5 E. 8

QUESTION 3

In the division on the right, the correct answer is

$$.004 \overline{) 24.56}$$

- A. 614
B. 6-14
C. 61-4
D. 614
E. 6140

QUESTION 4

The average (arithmetic mean) of 1.50, 2.40, 3.75 is equal to

- A. 2.40 B. 2.55 C. 3.75 D. 7.65 E. none of these

QUESTION 5

Which of the following operations with whole numbers will always give a whole number?

- I. Addition
II. Multiplication
III. Division

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

QUESTION 6

If the selling price of an article was £55 and a profit of 10% was made on the cost price, what was the cost price in pounds?

QUESTION 7

The value of 0.2131×0.02958 is approximately

- A. 0.6 B. 0.06 C. 0.006 D. 0.0006 E. 0.00006

QUESTION 8

Joe had three test scores of 78, 76, and 74, while Mary had scores of 72, 82, and 74. How did Joe's average compare with Mary's?

- A. Joe's was 1 mark higher.
B. Joe's was 1 mark lower.
C. Both averages were the same.
D. Joe's was 2 marks higher.
E. Joe's was 2 marks lower.

QUESTION 9

Which of the following is false when a and b are different real numbers:

- A. $(a + b) + c = a + (b + c)$
B. $ab = ba$
C. $a + b = b + a$
D. $(ab)c = a(bc)$
E. $a - b = b - a$

QUESTION 10

If $P = LW$ and if $P = 12$ and $L = 3$, then W is equal to

- A. $\frac{3}{4}$ B. 3 C. 4 D. 12 E. 36

QUESTION 11

Simplify: $5x + 3y + 2x - 4y$

- A. $7x + 7y$ D. $7x - y$
B. $8x - 2y$
C. $6xy$ E. $7x + y$

QUESTION 12

What is the value of $(-6) - (-8)$?

QUESTION 13

If AB is a straight line, what is the measure in degrees of angle BCD in the figure on the right?

- A. 20
- B. 40
- C. 50
- D. 80
- E. 100

[Picture]

QUESTION 14

If $x = y = z = 1$, then $\frac{x - z}{x + y}$ is equal to

- A. -2
- B. -1
- C. 0
- D. $\frac{1}{2}$
- E. 1

QUESTION 15

If $x = -3$, the value of $-3x$ is

- A. -9
- B. -6
- C. -1
- D. 1
- E. 9

16-17 / 2

Use the graph below in answering the two following questions.

[Picture]

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

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

17. 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
- B. 1 hour 30 minutes
- C. 2 hours
- D. 2 hours 30 minutes
- E. 2 hours 45 minutes

QUESTION 18

In $\triangle KLM$, $KL = KM$, $PO \perp LM$, and LKP is a straight line.
Then $\triangle NKP$ is isosceles because

[Note: the character \triangle denotes the character for a triangle]
[: the character \hat{A} denotes the character for an angle]
[: the character \perp denotes the character for a perpendicular line]

- A. $\hat{A} P = \hat{A} KNP$, since both are complements of the equal angles L and M .
- B. $NK = PK$, since $\hat{A} P = \hat{A} M$.
- C. its sides are parallel to the sides of $\triangle KLM$. [Picture]
- D. its sides are perpendicular to the sides of $\triangle KLM$.
- E. $\hat{A} P = \hat{A} KNP$ since both are half the supplement of angle M .

QUESTION 19

The distance between two schools on a map with a scale of 1 : 10,000 is 20 cm. What is the actual distance in kilometres between the two schools ?

QUESTION 20

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 21

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

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

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

QUESTION 22

The expression $\frac{a}{b-c} + \frac{a}{c-b}$, where $a \neq 0$ and $b \neq c$, is equal to

[Note: originally \neq was printed as $=$ overprinted with a /]

- | | |
|--------------------------|-------------------|
| A. 0 | D. $\frac{a}{2b}$ |
| B. $\frac{2a}{b-c}$ | |
| C. $\frac{a}{b^2 - c^2}$ | E. $2a$ |

QUESTION 23

Lemonade costs a pence for each bottle but there is a refund of b pence on each empty bottle. How much will Henry have to pay for x bottles if he brings back y empties?

- | | |
|---------------------|------------------------------|
| A. $ax + by$ pence | D. $(a + x) - (b + y)$ pence |
| B. $ax - by$ pence | |
| C. $(a - b)x$ pence | E. None of these |

QUESTION 24

From a long stick of wood a man cut 6 short sticks each 2 feet long. He then found he had 1 foot left over. Which of the following would tell him the length of the original stick of wood ?

- | | |
|-----------------------|-----------------------|
| A. $6 \times (2 + 1)$ | D. $(6 \times 2) - 1$ |
| B. $(6 \times 2) + 1$ | |
| C. $(6 \div 2) - 1$ | E. $(6 \div 2) + 1$ |