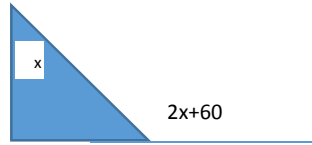


Mathematics (Group B)

Tick the best option of the following questions

1 In the figure, what is the value of x ?

- a) 30 b) 32
c) 35 d) 40
e) 47



2 If $2 < x < 5$ and $3 < y < 5$, which of the following best describes $x-y$?

- a) $-3 < x-y < 2$ b) $-3 < x-y < 5$
c) $0 < x-y < 2$ d) $3 < x-y < 5$ e) $2 < x-y < 5$

3 In travelling from city A to city B. John drove for 1 hour at 50 mph and for 3 hours at 60 mph. What was his average speed for the whole trip?

- a) 50 b) $53 \frac{1}{2}$ c) 55
d) 56 e) $57 \frac{1}{2}$

4 The average of six consecutive integers in increasing order of size is $9 \frac{1}{2}$. What is the average of the last three integers?

- a) 8 b) $9 \frac{1}{2}$ c) 10
d) 11 e) 19

5 $\frac{x^2-2x+1}{x-1} =$

- a) $x+1$ b) $-x-1$ c) $-x+1$
d) $x-1$ e) $x-2$

6 What percent of 25 is 5?

- a) 10% b) 20% c) 30%
d) 35% e) 40%

7 How many ounces of a solution that is 30 percent salt must be added to a 50 ounce solution that is 10 percent salt so that the resulting solution is 20 percent salt?

- a) 20 b) 30 c) 40
d) 50 e) 60

8 Laura has 20 coins consisting of quarters and dimes. If she has a total of \$3.05, how many dimes does she have?

- a) 3 b) 7 c) 10
d) 13 e) 16

9 what is the sixth term of the sequence 90, -30, 10, $-10/3$, ...?

- a) $1/3$ b) 0 c) $-10/27$
d) -3 e) $-100/3$

10 The sum of the squares of the first n positive integers

$1^2 + 2^2 + 3^2 + \dots + n^2$ is $\frac{n(n+1)(2n+1)}{6}$. What is the sum of the squares of the first 9 positive integers?

- a) 90 b) 125 c) 200
d) 285 e) 682

11 A school has a total enrollment of 150 students. There are 63 students taking French, 48 taking chemistry, and 21 taking both. How many students are taking neither French nor chemistry?

- a) 60 b) 65 c) 71
d) 75 e) 97

12 If 4 percent of $(p+q)$ is 8 and p is a positive integer, what is the greatest possible value of q ?

- a) 196 b) 197 c) 198
d) 199 e) 200

13 Let $x = .99$, $y = \sqrt{.99}$, and $z = (.99)^2$. Then which of the following is true?

- a) $x < z < y$ b) $z < y < x$ c) $z < x < y$ d) $y < x < z$
e) $y < z < x$

14 If the ratio of y to x is equal to 3 and the sum of y and x is 80, what is the value of y ?

- a) -10 b) -2 c) 5
d) 20 e) 60

- 15 The population of a town was 12,000, and ten years later it was 16,000. What was the percent increase in the population of the town during this period?
 a) $33\frac{1}{3}\%$ b) 50% c) 75%
 d) 80% e) 120%
- 16 The seventh number in a sequence of numbers is 31 and each number after the first number in the sequence is 4 less than the number immediately preceding it. What is the fourth number in the sequence?
 a) 15 b) 19 c) 35
 d) 43 e) 51
- 17 what is the sixth term of the sequence 90, -30, 10, -10/3, ...?
 a) 1/3 b) 0 c) -10/27
 d) -3 e) -100/3
- 18 In traveling from city A to city B, John drove for 1 hour at 50 mph and for 3 hours at 60 mph. What was his average speed for the whole trip?
 a) 50 b) $53\frac{1}{2}$ c) 55
 d) 56 e) $57\frac{1}{2}$
- 19 If Biff can Shape 3 surfboards in 50 minutes, how many surfboards can he shape in 5 hours?
 a) 16 b) 17 c) 18
 d) 19 e) 20
- 20 If there are 15 boys and 25 girls in a class, what percent of the class is boys?
 a) 10% b) 15% c) 18%
 d) 25% e) 37.5%
- 21 In the standard coordinate system, which of the following points is the greatest distance from the origin:
 a) (-4, -1) b) (-3, 3) c) (4, 0)
 d) (2, 3) e) (0, 4)
- 22 If x is an integer and $y = -2x - 8$, what is the least value of x for which y is less than 9?
 a) -9 b) -8 c) -7
 d) -6 e) -5
- 23 The decimal .1 is how many times greater than the decimal (.001)³?
 a) 10 b) 10^2 c) 10^5
 d) 10^8 e) 10^{10}
- 24 If $a + 3a$ is 4 less than $b + 3b$, then $a - b =$
 a) -4 b) -1 c) $\frac{1}{5}$
 d) $\frac{1}{3}$ e) 2
- 25 If the sum of three consecutive integers is odd, then the first and the last integers must be
 a) odd, even b) odd, odd c) even, odd
 d) even, even e) none of the above

